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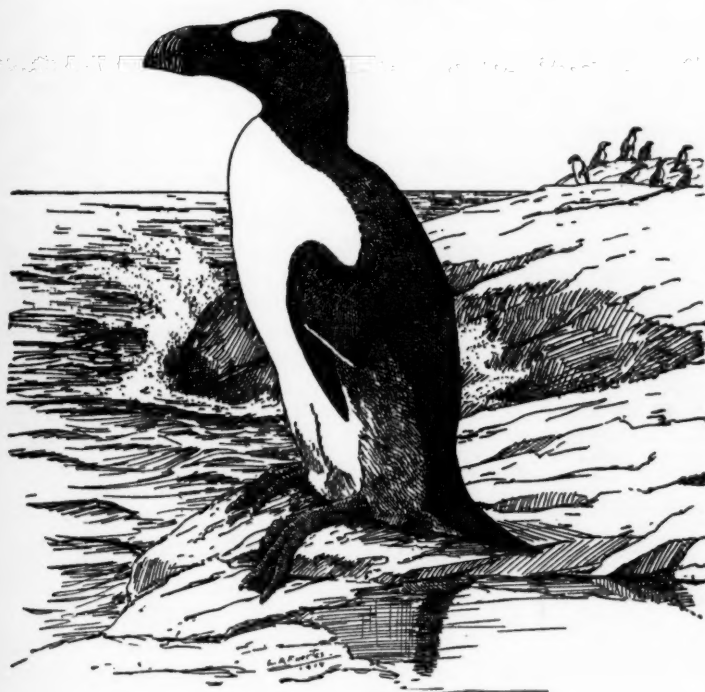
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EDITOR
WITMER STONE



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- *KENNARD, FREDERIC HEDGE, Dudley Road, Newton Centre, Mass. (1892)1912
- *LAW, JOHN EUGENE, Gen. Delivery, Altadena, Calif. (1907)1916
- LIGON, JAMES STOKLEY, Box 350, Santa Fe, N. Mex. (1912)1927
- *LINCOLN, FREDERICK CHARLES, Biological Survey, Washington, D. C. (1910)1921
- LLOYD, HOYES, 285 Mariposa Ave., Rockcliffe Park, Ottawa, Ont., Can. (1916)1925
- *LYON, WILLIAM ISAAC, 124 Washington St., Waukegan, Ill. (1921)1925
- MACKAY, GEORGE HENRY, 110 State St., Room 203, Boston, Mass. (1890)1901
- MAILLIARD, JOHN WARD, 230 California St., San Francisco, Calif. (1895)1901
- MILLER, DR. LOYE HOLMES, Univ. Calif. at Los Angeles, Calif. (1918)1920
- MOORE, ROBERT THOMAS, 1420 E. Mountain St., Pasadena, Calif. (1898)1914
- MOUSLEY, WILLIAM HENRY, 469 Harvard Ave., Montreal, Que., Can. (1915)1926
- MUNRO, JAMES ALEXANDER, Okanagan Landing, B. C., Can. (1913)1926
- *NAUMBURG, MRS. WALTER WEHLE, 121 E. 64th St., New York, N. Y. (1916)1924
- NICHOLS, JOHN TREADWELL, Am. Mus. Nat. Hist., New York, N. Y. (1901)1910
- NORTON, ARTHUR HERBERT, Mus. Nat. Hist., 22 Elm St., Portland, Maine. (1890)1902
- PEARSON, DR. THOMAS GILBERT, 1974 Broadway, New York, N. Y. (1891)1902
- PENARD, THOMAS EDWARD, 12 Norfolk Road, Arlington, Mass. (1912)1919
- PENNOCK, CHARLES JOHN, Kennett Square, Pa. (1888)1901
- PREBLE, EDWARD ALEXANDER, Biological Survey, Washington, D. C. (1892)1901
- RATHBUN, SAMUEL FREDERICK, 306 Roy vue Apts., 615 Bellevue Ave. N., Seattle, Wash. (1893)1902
- *RIVES, DR. WILLIAM CABELL, 1702 Rhode Island Ave., Washington, D. C. (1885)1901

- *ROGERS, CHARLES HENRY, East Guyot Hall, Princeton, N. J. (1904)1921
 ROWAN, PROF. WILLIAM, Univ. Alberta, Edmonton, Alta., Can. (1920)1927
 SAUNDERS, ARETAS ANDREWS, 48 Longview Ave., Fairfield, Conn. (1907)1920
 SETON, ERNEST THOMPSON, Greenwich, Conn. (1883)1901
 *SHERMAN, MISS ALTHEA ROSINA, National, via McGregor, Iowa (1907)1912
 *SHIRAS, HON. GEORGE, 3D, 4530 Klinge St., Wesley Heights, Washington, D. C. (1907)1915
 SIMMONS, GEORGE FINLAY, Cleveland Mus., 2717 Euclid Ave., Cleveland, Ohio. (1910)1923
 SPRUNT, ALEXANDER, JR., 92 South Bay St., Charleston, S. C. (1923)1928
 STEPHENS, FRANK, Nat. Hist. Museum, San Diego, Calif. (1883)1901
 STEPHENS, PROF. THOMAS CALDERWOOD, Morningside College, Sioux City, Iowa. (1909)1920
 STODDARD, HERBERT LEE, Beachton, Grady Co., Ga. (1912)1924
 STORER, DR. TRACY IRWIN, Div. Zool., Univ. Farm. Davis, Calif. (1916)1922
 STREET, JOHN FLETCHER, 1120 Locust St., Philadelphia, Pa. (1908)1928
 STRONG, DR. REUBEN MYRON, 5840 Stoney Island Ave., Hyde Park Sta., Chicago, Ill. (1889)1903
 *STUART, GEORGE HAY, 3D, 923 Clinton St., Philadelphia, Pa. (1913)1928
 SUTTON, GEORGE MIKSCH, State Game Comm., Harrisburg, Pa. (1919)1925
 SWENK, MYRON HARMON, 1410 N. 37th St., Lincoln, Nebr. (1904)1920
 THAYER, JOHN ELIOT, Lancaster, Mass. (1898)1905
 TOWNSEND, DR. CHARLES HASKINS, Aquarium, Battery Park, New York, N. Y. (1883)1901
 TROTTER, DR. SPENCER, Darlington & Miner Sts., West Chester, Pa. (1888)1901
 *TYLER, DR. WINSOR MARRETT, 112 Pinckney St., Boston, Mass. (1912)1917
 VAN ROSSEM, ADRIAAN JOSEPH, 514 Lester Ave., Pasadena, Calif. (1923)1927
 VAN TYNE, DR. JOSSELYN, University Museum, Ann Arbor, Mich. (1922)1928
 WARREN, EDWARD ROYAL, 1511 Wood Ave., Colorado Springs, Colo. (1902)1910
 WHITE, FRANCIS BEACH, St. Paul's School, Concord, N. H. (1891)1925
 WILLETT, GEORGE, Los Angeles Museum, Exposition Park, Los Angeles, Calif. (1912)1913
 *WILLIAMS, ROBERT WHITE, Dept. Agric., Washington, D. C. (1900)1918
 WOLCOTT, DR. ROBERT HENRY, State University, Lincoln, Nebr. (1901)1903
 *WOOD, DR. CASEY ALBERT, 7 W. Madison St., Chicago, Ill. (1917)1921

- WOOD, NORMAN ASA, Museum Univ. of Mich., Ann Arbor, Mich. (1904)1912
 WRIGHT, DR. ALBERT HAZEN, Upland Road, Ithaca, N. Y.... (1906)1919
 WRIGHT, MRS. MABEL OSGOOD, Box 32, Fairfield, Conn. (1895)1901
 ZIMMER, JOHN TODD, Field Mus. Nat. Hist., Chicago, Ill. (1908)1922

ASSOCIATES.

*Life associate.

**Honorary life associate.

- ABBEY, G. F., Cottonwood, Minn. 1924
 ABBOTT, CLINTON GILBERT, Nat. Hist. Mus., Balboa Park, San Diego, Calif. 1898
 ABBOTT, MISS HARRIET, P. O. Box 125, Fryeburg, Maine. 1918
 *ACHILLES, MRS. GERTRUDE STRONG, Morgan Hill, Calif. 1925
 ADAMS, BENJAMIN, P. O. Box 42, Wethersfield, Conn. 1911
 ADAMS, DR. CHARLES EVERETT, 29 W. Broadway, Bangor, Maine. . 1922
 ADAMS, IVERS SHEPARD, 98 Washington St., Dorchester, Mass. 1923
 ADAMS, WILLIAM CLARK, Div. of Fisheries and Game, State House, Boston, Mass. 1920
 ADAMS, DR. ZABDIEL BOYLSTON, 43 Cottage Farm Road, Brookline, Mass. 1908
 AGASSIZ, RODOLPHE LOUIS, 14 Ashburton Pl., Boston, Mass. 1922
 AHRENS, RAYMOND MILTON, 2513 Lincoln Ave., Chicago, Ill. 1927
 AHRENS, DR. THEODOR GEORGE, Xantenerstrasse 21, Berlin, W. 15, Germany. 1920
 **AIKEN, CHARLES EDWARD HOWARD, 1523 N. Tejon St., Colorado Springs, Colo. 1926
 AIMAR, MISS AGATHA, 268 Calhoun St., Charleston, S. C. 1928
 *ALEXANDER, MISS ANNIE MONTAGUE, Box 248, Suisun City, Calif. . 1911
 ALFORD, CHARLES EGERTON, "Hurst," Walberswick, Southwold, Suffolk, England. 1928
 ALLEN, MRS. AMELIA SANBORN, 37 Mosswood Road, Berkeley, Calif. 1919
 ALLEN, ARTHUR FRANCIS, 714 34th St., Sioux City, Iowa. 1919
 ALLEN, DEVERE, Wilton, Conn. 1925
 ALLEN, EGBERT CHESLEY, 150 South St., Halifax, Nova Scotia., Can. 1928
 ALLEN, WALTER FOX, 168 Delevan Ave., Newark, N. J. 1925
 ALLERT, OSCAR PAUL, R. D. 1, McGregor, Iowa. 1923
 ALSOP, MISS ELIZABETH BILLINGS, 229 Euclid Ave., Ridgway, Pa. . 1926
 ANDERSON, CHARLES JOHN, 2033 Wilbraham Rd., Springfield, Mass. 1922
 ANDERSON, EDWIN CONRAD, R. D. 4, Dell Rapids, S. D. 1919
 ANDERSON, WILLIAM, South Park, Merriam, Kansas. 1925
 ANDREWS, ARTHUR ALLEN, 28 Dungan St., Canandaigua, N. Y. 1924

- ANDREWS, CLEMENT WALKER, The John Crerar Library, Chicago, Ill.
1924
- ANGELL, WALTER ALLEN, 33 Westminster St., Providence, R. I. 1901
- ANGWIN, JAMES GARFIELD, 146 Green Ridge St., Dunmore, Pa. 1926
- ANKENEY, MISS HELEN, Rt. 10, Xenia, Ohio 1920
- ANTHONY, HAROLD ELMER, Am. Mus. Nat. Hist., New York, N. Y. 1911
- ARMSTRONG, EDWARD ELTON, 2249 Calumet Ave., Chicago, Ill. 1904
- ARNOLD, BENJAMIN WENTWORTH, 465 State St., Albany, N. Y. 1924
- ARNOLD, EDWARD, Canadian Nat'l R'ys, Montreal, Que., Can. 1894
- ARNOLD, DR. HORACE DAVID, 520 Commonwealth Ave., Boston, Mass. 1923
- ARTHUR, EDMUND WATTS, 7438 Perrysville Ave., Ben Avon, Pitts-
burgh, Pa. 1919
- ARTHUR, STANLEY CLISBY, 1309 State St., New Orleans, La. 1916
- ASPINWALL, MRS. CLARENCE AKIN, 2340 Kalorama Rd., Washington,
D. C. 1916
- ASTLEY, ARTHUR, Freshfield, Ambleside, England. 1928
- ATHERTON, EDWARD HERBERT, 22 Aldworth St., Jamaica Plain, 30,
Mass. 1917
- ATKINSON, DR. DANIEL ARMSTRONG, 132 Oakwood Ave., West View,
Pittsburgh, Pa. 1924
- ATKINSON, HENRY SHEPARD, 5 North Edwards Hall, Princeton,
N. J. 1926
- ATWELL, GEORGE CARRINGTON, Strafford, N. H. 1920
- AUGSPURGER, EARL FRANKLIN, R. D. 1, Pulaski, Iowa 1927
- AUSTIN, OLIVER LUTHER, JR., Hill Rest, Tuckahoe, N. Y. 1925
- AVERBACH, BERTRAM FREDERICK, 2173 Cummington Rd., Cleveland,
Ohio. 1924
- AVERILL, CHARLES KETCHUM, 1075 Iranistan Ave., Bridgeport, Conn.
1919
- AVERY, CARLOS, 2273 Woolworth Bldg., 233 Broadway, New York,
N. Y. 1925
- BABCOCK, DR. HAROLD L., Woodleigh Road, Dedham, Mass. 1926
- BACHMAN, DR. HAROLD ALBERT, 2340 Lincoln Park West, Chicago, Ill. 1924
- BACON, FRANCIS LLEWELLYN, 236 Winona Ave., Germantown, Pa. . 1917
- BADÉ, DR. WILLIAM FREDERIC, 2616 College Ave., Berkeley, Calif. . 1916
- BAERG, PROF. WILLIAM J., Exp. Sta., Univ. of Ark., Fayetteville,
Ark. 1924
- *BAGG, AARON CLARK, 70 Fairfield Ave., Holyoke, Mass. 1916
- BAILEY, ALFRED MARSHALL, Chicago Academy of Sciences, Chicago,
Ill. 1918
- BAILEY, PROF. GUY ANDREW, Geneseo, N. Y. 1910
- BAILEY, MRS. H. M., 2109 Nebraska St., Sioux City, Iowa 1922
- BAILEY, JOHN WENDELL, Mississippi College, Clinton, Miss. 1925
- BAILLIE, JAMES LITTLE, Royal Ontario Museum, Toronto, Ont.,
Can. 1923
- BAIRD, DAVID G., 228 S. Third St., Philadelphia, Pa. 1924

BAIRD, MISS KATHARINE BRUCE, 815 Webster St., Washington, D. C.	1918
BAIRD, ROBERT LOGAN, 279 Oak St., Oberlin, Ohio	1921
BAKER, JOHN HOPKINSON, 1165 Fifth Ave., New York, N. Y.	1911
BALDWIN, MRS. HARRY L., 7136 Ridgeland Ave., Chicago, Ill.	1924
BALES, DR. BLENN RIFE, 149 W. Main St., Circleville, Ohio	1907
BALL, MRS. BENNET F., Oakville, Conn.	1905
BALL, EDWARD MATTHEWS, Box 144, East Falls Church, Va.	1918
BALL, DR. JOSEPH PRICE, 5001 Frankford Ave., Philadelphia, Pa.	1911
BALL, WILLIAM HOWARD, 1233 Irving St., N.W., Washington, D. C.	1923
BALM, HARRY, 7 Oriole Parkway, Toronto, Ont., Canada	1928
BARBER, PROF. BERTRAM ALPHA, 350 West St., North, Hillsdale, Mich.	1920
BARCLAY, WILLIAM, 110 Nelson St., Barre, Vt.	1921
BARKER, FREDERICK WILLIAM HARRISON, 114 Brunswick St., Fredericton, N. B., Can.	1927
BARLOW, HENRY HOYT, c/o H. H. Dennis, Ill. Athletic Club, Chicago, Ill.	1921
BARNARD, THEODORE WINTHROP, 46 Norfolk Road, Arlington, Mass.	1921
BARNES, CLAUDE TEANCUM, 359 Tenth Ave., Salt Lake City, Utah.	1908
BARNES, RICHARD MAGOON, Lacon, Ill.	1889
BARODY, MRS. ELIJAH T., 3130 Wenonah Ave., Berwyn, Ill.	1927
BARRETT, CHARLES HORATIO MATCHETT, 1339 Valley Place, S.E., Washington, D. C.	1912
BARRETT, HAROLD LAWRENCE, 30 State St., Boston, Mass.	1909
BARRY, MISS ANNA KINGMAN, 5 Bowdoin Ave., Dorchester 21, Mass.	1907
BARRY, JOHN FREDERICK, JR., 246 Walton St., Syracuse, N. Y.	1926
BARTRAM, EDWIN B., Bushkill, Pike Co., Pa.	1913
BARTRAM, JOHN, Rt. 2, West Chester, Pa.	1924
BASCOM, HUBERT PARKINSON, Stockton, St. Michael, Barbados, B. W. I.	1922
BASNER, HARRY, 440 Broadway, New York, N. Y.	1927
BASSETT, FRANK NEWTON, 91 Merced Ave., San Francisco, Calif.	1919
BASSETT, MRS. VICTOR HUGO, 1010 E. Park Ave., Savannah, Ga.	1927
BATES, MISS EMELINE CLARK, 17 Scott St., Chicago, Ill.	1920
BATES, REV. JOHN MALLORY, Red Cloud, Nebr.	1918
BATTEN, GEORGE, 15 University Place, Princeton, N. J.	1914
BAYLEY, IVAN A., North Sydney, Nova Scotia, Can.	1927
BAYNARD, OSCAR EDWARD, P. O. Box 104, Plant City, Fla.	1924
BEACH, DR. CHARLES COFFING, 54 Woodland St., Hartford, Conn.	1922
BEADEL, HENRY LUDLOW, Route A, Tallahassee, Fla.	1926
BEALE, MRS. ALFRED TENNYSON, 5833 85th St., Elmhurst, L. I., N. Y.	1928

BEATTY, GEORGE HUDDALL, JR., 256 Linden Ave., Merion Station, Pa.	1925
BEAUPRE, EDWIN, Princess St., Kingston, Ont., Can.	1922
BECK, HERBERT HUEBENER, Lititz, Lancaster County, Pa.	1921
BECK, JOSEPH NICHOLAS, Remsen, Iowa	1923
BEDELL, EDGAR, 118 Front St., Schenectady, N. Y.	1922
BEE, RALPH GEORGE, 81 E. Center St., Provo, Utah.	1926
BELKNAP, JOHN BALCOM, 40 Pleasant St., Framingham Center, Mass.	1927
BELL, DR. WILLIAM BONAR, 803 Rittenhouse St., Washington, D. C.	1912
BENDER, RICHARD OLIVER, 512 Thayer St., Ridley Park, Pa.	1927
BENNETT, WALTER WALDO, 309 Warnock Bldg., Sioux City, Iowa	1924
BENSON, FRANK WESTON, 14 Chestnut St., Salem, Mass.	1920
BENSON, MRS. G. F., Owen, Wis.	1926
BENSON, SETH BERTRAM, Mus. of Vert. Zool., University of California, Berkeley, Calif.	1928
BERRY, ELVERTON CLOUTMAN, Box 234, Conway, N. H.	1924
BEZEMER, K. W. L., BLITAR, Java, Dutch East Indies.	1928
BIBBEE, PAUL CECIL, Concordia State Normal School, Athens, W. Va.	1927
BICKNELL, MRS. FREDERICK THOMPSON, 319 S. Normandie Ave., Los Angeles, Calif.	1913
*BICKNELL, GEORGE A., Farmers' Loan & Trust Co., 22 William St., New York, N. Y.	1926
BIDDLE, MISS EMILY WILLIAMS, 1828 Delancey Place, Philadelphia, Pa.	1898
BIERMAN, WILLEM HENDRIK, Blesboklaan 6, Hilversum, Holland	1928
*BIGELOW, MRS. ARCHIBALD PIERCE, Ogden, Utah.	1919
BIGELOW, HOMER LANE, 37 Old Orchard Road, Chestnut Hill, Mass.	1902
BIGELOW, DR. LYMAN FISHER, 80 Winter St., Norwood, Mass.	1914
BIRD, RALPH DURHAM, Birtle, Man., Can.	1927
BISHOP, HARGRAVE JOUËT, 253 E. 3rd Ave., Roselle, N. J.	1928
BISHOP, SHERMAN CHAUNCEY, Dept. of Biology, Univ. of Rochester, Rochester, N. Y.	1919
BLACK, JOHN DAVID, Winslow, Ark.	1926
BLACKWELDER, ELIOT, Stanford University, Calif.	1895
BLAIR, MISS HELEN MARIE, 254 Melwood St., Oakland, Pittsburgh, Pa.	1924
BLAKE, MRS. EDWIN TYLER, Arlington Ave. & Rincon Rd., Berkeley, Calif.	1927
BLAKE, DR. SIDNEY FAY, Bureau of Plant Industry, Dept. of Agr., Washington, D. C.	1923
BLANCHARD, FRANK NELSON, Dept. Zool., Univ. of Michigan, Ann Arbor, Mich.	1924
BLINCOE, BENEDICT JOSEPH, Rt. 13, Dayton, Ohio	1921

- BLOOMFIELD, MRS. C. C., 729 W. Main St., Jackson, Mich. 1901
 BOARDMAN, MISS ELIZA DENNIE, 416 Marlborough St., Boston, Mass. 1906
 BODINE, MRS. DONALDSON, 4 Mills Place, Crawfordsville, Ind. 1916
 BODINE, MISS MARGARET LAMB, 19th & Walnut Sts., Philadelphia, Pa. 1927
 BOEHNER, REGINALD STEPHEN, Syracuse Univ., Syracuse, N. Y. 1919
 BOESEL, MARION WATERMAN, 415 S. Washington St., New Bremen, Ohio 1922
 BOGARDUS, MISS CHARLOTTE, Round Lake, Saratoga Co., N. Y. 1909
 BOGGS, MISS MARION ALEXANDER, Rt. 3, Waynesville, N. C. 1924
 BOLEN, HOMER ROSCOE, State Teachers College, Cape Girardeau, Mo. 1926
 BOLT, BENJAMIN FRANKLIN, 225 E. 46th St., Kansas City, Mo. 1909
 BOND, JAMES, 1213 Locust St., Philadelphia, Pa. 1923
 *BONFILS, FREDERICK GILMER, 1500 E. 10th Ave., Denver, Colo. 1918
 BOOK, MISS LOIS ADELAIDE, 733 Franklin St., Columbus, Ind. 1928
 BOOTH, E. J., 2805 Elm St., Bellingham, Wash. 1928
 BORELL, ADREY EDWIN, 753 56th St., Oakland, Calif. 1927
 BOSSON, CAMPBELL, 560 Concord Ave., Belmont, Mass. 1906
 BOULDUC, PETER, Bemidji, Minn. 1927
 BOULTON, WOLFRID RUDYERD, Carnegie Mus., Pittsburgh, Pa. 1915
 BOWDISH, BEECHER SCOVILLE, Demarest, N. J. 1891
 BOWDISH, MRS. BEECHER SCOVILLE, Demarest, N. J. 1902
 BOWEN, WILFRID WEDGWOOD, c/o Ernest Knaebel, 3707 Morrison St., Chevy Chase, Washington, D. C. 1926
 BOWLES, MRS. HENRY LELAND, 41 Ridgewood Place, Springfield, Mass. 1924
 BOWMAN, DR. JOHN GABBERT, 155 N. Dithridge St., Pittsburgh, Pa. 1925
 BOYCE, JAMES GARFIELD, Box 772, Texarkana, Texas. 1923
 BOYD, MRS. HARRIET T., 17 Marsh St., Dedham, Mass. 1917
 BOYD, HENRY RAMÓN, 133 Shephard Ave., Newark, N. J. 1925
 BOYLE, ASHBY D., 1001 E. South Temple St., Salt Lake City, Utah. 1921
 BRACKEN, MRS. HENRY MARTYN, 999 College Ave., Claremont, Calif. 1897
 BRADSHAW, FRED, Director Provincial Mus. Normal School, Regina, Sask., Can. 1921
 *BRALY, JOHN CLAUDE, 501 Burnside St., Portland, Oregon. 1926
 *BRANDRETH, COURTENAY, Ossining, N. Y. 1905
 *BRENDRETH, FRANKLIN, Ossining, N. Y. 1886
 BRANDT, HERBERT WILLIAM, 14507 Shaker Blvd., Shaker Heights, Cleveland, Ohio 1915
 BRANNON, PETER ALEXANDER, Box 358, Montgomery, Ala. 1919
 BRECKENRIDGE, WALTER JOHN, Zool. Museum, Univ. Minn., Minneapolis, Minn. 1926

BREDER, CHARLES MARCUS, JR., Aquarium, Battery Park, New York, N. Y.....	1919
BRETSCH, CLARENCE, 690 Broadway, Gary, Ind.....	1924
BRICKENSTEIN, MISS MARY REBEKAH, Apt. 614, The Wyoming, Washington, D. C.....	1920
BRIDGE, EDMUND, 52 Wyman St., West Medford, Mass.....	1910
BRIDGHAM, SAMUEL WILLARD, JR., 18 Brown St., Providence, R. I.....	1928
BRIGGS, MRS. EDSON WORCESTER, 7760 16th St., N. W., Washington, D. C.....	1928
BRIGHT, STANLEY, R. D. 2, Reading, Pa.....	1921
BRIMLEY, HERBERT HUTCHINSON, State Museum, Raleigh, N. C.....	1904
BRISTOL, MISS FRANCES LOUISA, 169 Columbia Heights, Brooklyn, N. Y.....	1921
BRITAIN, WILLIAM EDWIN, Fort Osborne Barracks, Winnipeg, Man., Can.....	1927
BROCKWAY, ARTHUR WILLIAM, Hadlyme, Conn.....	1912
BRODE, DR. HOWARD STIDHAM, 433 E. Alder St., Walla Walla, Wash.....	1923
BRODKORB, WILLIAM PIERCE, 711 Judson Ave., Evanston, Ill.....	1925
BROLEY, CHARLES LAVELLE, Mgr. Bank of Montreal, Corydon Ave., Winnipeg, Man., Can.....	1926
BRONSON, BARNARD SAWYER, 46 Lenox Ave., Albany, N. Y.....	1920
BROOKS, CHESTER KINGSLEY, 10600 Quincy Ave., Cleveland, Ohio.....	1924
BROOKS, DR. EARL, Noblesville, Ind.....	1924
BROOKS, REV. EARLE AMOS, 166 Plymouth Road, Newton Highlands, Mass.....	1892
BROOKS, GORHAM, 60 State St., Boston, Mass.....	1919
BROOKS, SUMNER CUSHING, Rutgers Univ. New Brunswick, N. J.....	1924
BROUN, MORRIS, c/o Mrs. Arthur Ruisseaux, R. D. 2, Box 297, Pittsfield, Mass.....	1922
BROWN, MISS BERTHA LOUISE, 53 Court St., Bangor, Maine.....	1918
BROWN, EDMUND P., 48 Union St., Belfast, Maine.....	1920
BROWN, EDWARD JOHNSON, 3722 Cornelia Drive, Coconut Grove, Miami, Florida.....	1891
BROWN, HARRY APPLETON, 40 Talbot St., Lowell, Mass.....	1912
BROWN, HOWARD FLETCHER, 405 Avondale Ave., Houston, Texas.....	1928
BROWN, HUBERT H., 158 Glebeholme Blvd., Toronto, Ont., Can.....	1924
BROWN, WILLIAM JAMES, 250 Oliver Ave., Westmount, Que., Can.....	1908
BROWN, WILLIAM LEWIS, U. S. Nat. Museum, Washington, D. C.....	1927
BROWNING, WILLIAM HALL, 260 4th Ave., New York, N. Y.....	1911
BROWNLIE, DR. IRA C., 2040 Clermont St., Denver, Colo.....	1927
BRUEN, FRANK, 52-B Prospect Place, Bristol, Conn.....	1908
BRUMBAUGH, CHALMERS SHERFEY, 2606 Elsinor Ave., Baltimore, Md.....	1916
BRUNER, STEPHEN COLE, Estacion Agronomica, Santiago de las Vegas, Habana, Cuba.....	1926
*BRUUN, CHARLES ANAULTUS, 1510 Central Ave., Hot Springs, Ark.....	1919

BRYAN MRS. A. H., P. O. Box 414, Balboa Heights, Canal Zone....	1927
BRYANT, LINCOLN, JR., 149 Randolph Ave., Milton, Mass.....	1927
BRYANT, WILLIAM LETCHWORTH, Park Museum, Providence, R. I....	1926
BRYENS, OSCAR MCKINLEY, McMillan, Luce Co., Mich.....	1924
BUCKLE, JOHN WILLIAM, c/o Thomas Robertson & Co., P. O. Box 2460, Montreal, Can.....	1928
BUCKLIN, MRS. WALTER S., 469 Walnut St., Brookline, Mass.....	1924
BULL, CHARLES LIVINGSTON, Oradell, N. J.....	1920
BULLOCK, DILLMAN SAMUEL, Casilla 71, Angol, Chile.....	1920
BUNDICK, MISS HARRIET ELLEN, 1465 Columbia Road, N.W., Wash- ington, D. C.....	1924
BURBANK, MRS. GEORGE E., Sandwich, Mass.....	1922
BURGE, EDWARD SEYMOUR, 924 Forest Ave., Wilmette, Ill.....	1927
BURGESS, DR. HENRY CLINTON, Brigham Hall, Canandaigua, N. Y.....	1920
BURGESS, JOHN KINGSBURY, West St., Dedham, Mass.....	1898
BURGESS, THORNTON WALDO, 61 Washington Road, Springfield, Mass. 1919	
BURLEIGH, THOMAS DEARBORN, College of Agriculture, Athens, Ga.....	1913
BURNELL, MISS ELIZABETH FRAYER, 1029 N. Stanley Ave., Los Angeles, Calif.....	1923
BURNETT, WILLIAM LEWIS, Agric. College, Fort Collins, Colo.....	1895
BURNHAM, STEWART HENRY, Dept. of Botany, Cornell Univ., Ithaca, N. Y.....	1919
BURT, WILLIAM HENRY, Museum Vert. Zool., Berkeley, Calif.....	1925
BURTCH, VERDI, Branchport, N. Y.....	1903
BUSHBY, FRED WHEELER, 17 Washington St., Peabody, Mass.....	1922
BUTCHER, HOWARD, JR., Stanfair & Wistar Roads, Ardmore, Pa.....	1921
BUTLER, ARTHUR LENNOX, St. Leonard's Park, Horsham, Sussex, England.....	1928
BUTLER, EDWARD BURGESS, 2d, 100 Green Bay Road, Hubbard Woods, Ill.....	1925
BUTTS, WILBUR KINGSLEY, 206 Cascadilla Ave., Ithaca, N. Y.....	1927
BYRD, DR. HIRAM, 205 Zack St., Tampa, Fla.....	1925
BYRD, WALLACE, c/o Dr. Hiram Byrd, 205 Zack St., Tampa, Fla....	1925
CADWALADER, CHARLES M. B., Fort Washington, Pa.....	1924
CAHN, DR. ALVIN ROBERT, 164 N. LaSalle St., Chicago, Ill.....	1917
CAIRNS, DR. ALEXANDER, 746 Ridge St., Newark, N. J.....	1928
CAIRNS, JOHN MACKAY, 2403 N. Washington Ave., Scranton, Pa....	1926
CALDER, JAMES ALEXANDER, Rt. 1, Buena Park, Orange Co., Calif....	1926
CALHOUN, MISS EMMA MAY, 39 Auburn St., Brookline, Mass.....	1921
CALLENDER, JAMES PHILLIPS, 32 Broadway, New York, N. Y.....	1903
CALVERT, EARL WELLINGTON, c/o Jos. Madill, R. R. 5, Peterboro, Ont., Can.....	1919
CAMP, CARA LOUIS, 635 N. Irving Ave., Scranton, Pa.....	1926
CAMP, ROBERT DESHAN, Brownsville, Texas.....	1926
CAMPBELL, DR. JAMES ARCHIBALD, 13 Elm St., Toronto, Ont., Can....	1927

CANNON, GABRIEL, Spartanburg, S. C.....	1920
CAPEN, MISS ETHEL ADELE, 100 W. 80th St., New York, N. Y.....	1924
CAPEN, FREDERICK MORTIMER, 100 W. 80th St., New York, N. Y.....	1925
CAREY, HENRY REGINALD, 3115 Queen Lane, Germantown, Philadelphia, Pa.....	1925
CARLISLE, GEORGE LISTER, JR., 550 Park Ave., New York, N. Y.....	1920
CARPENTER, REV. CHARLES KNAPP, Baileyville, Ill.....	1894
CARPENTER, GEORGE I., 746 Lincoln Place, Brooklyn, N. Y.....	1907
CARRIGER, HENRY WARD, 5185 Trask St., Oakland, Calif.....	1913
CARROLL, JAMES JUDSON, P. O. Box 356, Houston, Texas.....	1926
CARTER, JOHN DARLINGTON, Lansdowne, Pa.....	1907
CARTER, LOWELL EDWIN, R. D. 2, Russiaville, Ind.....	1928
CARTER, THOMAS DONALD, Am. Mus. Nat. Hist., New York, N. Y.....	1921
CARTH, MRS. JEAN ELIZABETH, Morse Pond Grove, Wellesley, Mass.....	1922
CARTWRIGHT, BERTRAM WILLIAM, 213 Phoenix Block, Winnipeg, Man., Can.....	1924
CARTWRIGHT, WILLIAM JAMES, Williamstown, Mass.....	1920
CASE, MRS. FRANKLIN EVERETT, 1717 Market Ave. N., Canton, Ohio.....	1927
CASS, MISS ANNE, 19 Susquehanna Ave., Great Neck, L. I., N. Y.....	1925
**CHAMBERLAIN, CHAUNCY WARD, Hotel Hemenway, Boston, Mass.....	1885
CHAMBERLAIN, EDWARD BURNHAM, 182 Ashley Ave., Charleston, S. C.....	1923
CHANDLER, WILLARD P., JR., 426 S. Linden Ave., Pittsburgh, Pa.....	1924
*CHAPIN, MISS ANGIE CLARA, Waban Hotel, Wellesley, Mass.....	1896
CHAPIN, MRS. GILBERT WARREN, 350 Farmington Ave., Hartford, Conn.....	1926
CHAPMAN, CLARENCE EDWARD, Oakland, N. J.....	1924
CHAPMAN, MRS. FRANK MICHLER, 1158 Fifth Ave., New York, N. Y.....	1908
CHASE, CHARLES E., 31 Euclid Ave., East Lynn, Mass.....	1922
CHASE, SIDNEY, P. O. Box 162, Nantucket, Mass.....	1904
CHEESMAN, WILLIAM HANNOLD, Biological Survey, Washington, D. C.....	1920
CHENEY, REV. ROBERT FRANCIS, St. Mark's Rectory, Southborough, Mass.....	1922
CHILDS, MISS HELEN PORTER, 5901 Conn. Ave., Chevy Chase, Md.....	1922
CHRISTOFFERSON, DR. KARL, Munuskong State Park, R. F. D. 1, Pickford, Mich.....	1921
*CHRISTY, BAYARD HENDERSON, 403 Frederick Ave., Sewickley, Pa.....	1922
*CHURCH, MISS CYNTHIA, The Point, Great Neck, L. I., N. Y.....	1926
CLABAUGH, ERNEST DWIGHT, 18 Lenox Road, Berkeley, Calif.....	1924
CLARK, AUSTIN HOBART, 1818 Wyoming Ave., Washington, D. C.....	1919
CLARK, CLARENCE HULL, Lubec, Maine.....	1913
CLARK, GEORGE ROBERTS, Cynwyd, Pa.....	1926
CLARK, MISS JESSIE LEE, Chicago Academy of Sciences, Chicago, Ill.....	1927

CLARKE, CHARLES EVERETT, 51 Summit Road, Medford, Mass.	1907
CLARKE, GEORGE LEONARD, 219 Blackstone Blvd., Providence, R. I.	1924
CLARKE, MRS. NED, 105 E. Chicago St., Cold Water, Mich.	1925
CLAUSEN, ROBERT THEODORE, 139 Brook Ave., Passaic, N. J.	1928
CLAY, MISS MARCIA BARNES, R. D. 1, Bristolville, Ohio.	1925
CLAY, MRS. SIDNEY G., 148 Duncan Ave., Paris, Ky.	1926
*CLEAVES, HOWARD HENDERSON, 1848 Washington Ave., New York, N. Y.	1907
CLINGMAN, GEORGE FRANKLIN, 7210 Euclid Ave., Chicago, Ill.	1924
COBB, DR. STANLEY, Ponkapoag, Mass.	1909
COCHRAN, MISS DORIS MABLE, U. S. Nat. Museum, Washington, D. C.	1927
COFFEL, HAL HERBERT, Pennville, Jay Co., Ind.	1927
COFFIN, MRS. FRANCIS HOPKINSON, 1528 Jefferson Ave., Scranton, Pa.	1921
COFFIN, MRS. PERCIVAL BROOKS, 5708 Kenwood Ave., Chicago, Ill.	1905
COGGINS, HERBERT LEONARD, 2929 Piedmont Ave., Berkeley, Calif.	1913
COLBURN, ALBERT ERNEST, 716 S. Flower St., Los Angeles, Calif.	1891
COLE, DR. LEON JACOB, Dept. Genetics, Univ. of Wisconsin, Madi- son, Wis.	1908
COLEMAN, ROBERT HEMPHILL, 4 Green St., Charleston, S. C.	1926
COLLIN, ALBERT, Viborg, Temola, Finland.	1928
COLLINS, ALFRED MORRIS, 18 Simpson Road, Ardmore, Pa.	1921
*COLLINS, HENRY HILL, III, Bettws-Y-Coed, Bryn Mawr, Pa.	1923
COMMONS, FRANK WATKINS, 608 Chamber of Commerce, Minne- apolis, Minn.	1922
COMMONS, MRS. FRANK WATKINS, 608 Chamber of Commerce, Min- neapolis, Minn.	1902
COMPTON, LAWRENCE VERLYN, Museum, Univ. of Kansas, Lawrence, Kans.	1926
CONGER, ALLEN CLIFTON, Ohio Wesleyan Univ., Delaware, Ohio.	1919
CONGREVE, MAJOR WILLIAM MAITLAND, Hafod, Trefnant, Denbigh- shire, N. Wales, Gt. Britain.	1928
*CONOVER, HENRY BOARDMAN, 6 Scott St., Chicago, Ill.	1920
COOK, MISS FANNYE ADDINE, Crystal Springs, Miss.	1924
COOK, GRANT MACDONALD, 27 Tod Lane, Youngstown, Ohio.	1924
COOKE, GEORGE JOHNES, Lewis Lane, Ambler, Pa.	1925
COOKMAN, ALFRED, 517 McKinley Ave., Pomona, Calif.	1920
COOLIDGE, JOHN TEMPLEMAN, JR., Green St., Readville, Mass.	1927
COOLIDGE, OLIVER HILL, Madison Road, Scarsdale, N. Y.	1928
COOLIDGE, PHILIP TRIPP, 31 Central St., Bangor, Maine.	1919
COPE, FRANCIS REEVE, JR., Dimock, Pa.	1892
COPELAND, MANTON, 88 Federal St., Brunswick, Maine.	1900
CORDIER, DR. ALBERT HAWES, 415 Benton Blvd., Kansas City, Mo.	1920
CORYELL, SHERMAN, 1500 Hood Ave., Chicago, Ill.	1921

COTTAM, CLARENCE, Brigham Young Univ., Provo, Utah.....	1928
COUCH, LEO KING, Capitol Bldg., Olympia, Wash.....	1922
COUES, DR. WILLIAM PEARCE, 12 Monmouth Court, Brookline, Mass.	
	1920
COURSEN, BLAIR, 761 E. 69th Place, Chicago, Ill.....	1928
COURT, EDWARD JOHN, 1723 Newton St., N.W., Washington, D. C.	1927
COVELL, DR. HENRY HALL, 1600 East Ave., Rochester, N. Y.....	1918
COVERDALE, WILLIAM HUGH, 952 Fifth Ave., New York, N. Y.....	1928
COX, ARTHUR MALCOLM, 1135 Spruce St., Winnetka, Ill.....	1927
COX, RODMAN DAYTON, 785 South Ave., Rochester, N. Y.....	1919
CRABBE, MRS. CHARLES, 80 Oak St., Far Rockaway, N. Y.....	1921
CRAIG, GLENN CLIFFTON, 2222 Cole St., Florence, Ala.....	1923
CRAIG, THOMAS MOORE, 217 Queens Road, Charlotte, N. C.....	1928
CRAIGMILLE, MISS ESTHER ANN, 625 Ashland Ave., River Forest, Ill.	1927
CRANDALL, BOWEN SINCLAIR, JR., 213 Raymond St., Chevy Chase,	
Md.....	1927
CRANDALL, LEE SAUNDERS, Zoological Park, New York, N. Y.....	1909
CRANE, MISS CLARA LOOMIS, Dalton, Mass.....	1904
CRANE, LESLIE, 161 Holly St., Rutland, Vt.....	1922
CRIDDLE, NORMAN, Treesbank, Man., Can.....	1918
CROCKER, REV. WILLIAM T., 263 Lexington Ave., New York, N. Y.	1920
CROSS, ALBERT ASHLEY, Huntington, Mass.....	1918
CROWELL, MISS JOANN OLIVIA, Dennis, Mass.....	1918
CROWELL, MISS SARAH BELLE, Dennis, Mass.....	1924
CROWL, GEORGE HENRY, 516 N. Bever St., Wooster, Ohio.....	1927
CUMMINGS, MISS EMMA GERTRUDE, 16 Kennard Road, Brookline,	
Mass.....	1903
CUNNINGHAM, JOSIAS, JR., Fernhill, Belfast, Northern Ireland.....	1928
CURRIER, EDMONDE SAMUEL, 416 E. Chicago St., St. John's Sta.,	
Portland, Oregon.....	1894
CURTIS, CHARLES PELHAM, 71 Ames Bldg., Boston, Mass.....	1915
CURTIS, WILLIAM WOODSIDE, 93 Saint Paul St., Brookline, Mass....	1924
CUTLER, MRS. FREDERICK MORSE, 103 Butterfield Terrace, Am-	
herst, Mass.....	1923
CUTLER, DR. IRA EUGENE, 2122 S. Clayton St., Denver, Colo.....	1926
CUTTER, MISS LUCIA BELLE, Jaffrey, N. H.....	1920
CUYLER, WILLIAM KENNETH, 1216 W. 22nd St., Austin, Texas....	1923
DALES, MRS. MARIE, 14, 24th St., Sioux City, Iowa.....	1924
DALEY, MRS. EDWIN WOOD, Olivera, Ulster Co., N. Y.....	1925
DALEY, MISS MARY WOOD, Darling P. O., Delaware Co., Pa.....	1920
DANE, MRS. ERNEST BLANEY, Chestnut Hill, Mass.....	1912
DANFORTH, STUART TAYLOR, College of Agriculture, Mayaguez, P. R.	1916
DANIELSON, KARL AUGUSTUS, Litchfield, Minn.....	1928
DARCUS, S. J., Penticton, B. C., Canada.....	1928
DARLINGTON, PHILIP JACKSON, JR., 84 Corey Road, Brookline, Mass.	1923
DARROW, ROBERT WESLEY, 508 Dryden Rd., Ithaca, N. Y.....	1928

DAVENPORT, MRS. ELIZABETH BRAXTON, 46 Western Ave., Brattleboro, Vt.	1898
DAVIDSON, DR. A. M., 856 Palmerston Ave., Winnipeg, Man., Can. .	1922
DAVIDSON, MRS. GAYLORD, 4735 Dupont Ave., S., Minneapolis, Minn. .	1912
DAVIDSON, MRS. MARY ELLA, 717 Lincoln Ave., Palo Alto, Calif. . .	1920
DAVIDSON, WILLIAM MANN, Gov't. Testing Sta., Vienna, Va.	1927
DAVIS, MISS BERTHA EUNICE, 69 Cypress St., Brookline 46, Mass. .	1920
DAVIS, DORLAND JONES, 721 Elmwood Ave., Wilmette, Ill.	1928
DAVIS, MISS EDDIE LEE, 1317 North Main St., Anderson, S. C.	1928
DAVIS, HENRY WASSON, Seaside Hotel, Ventnor, Atlantic City, N. J. .	1922
DAVIS, JOHN M., 227 Clark St., Eureka, Calif.	1920
DAVIS, REUBEN NELSON, Everhart Museum, Scranton, Pa.	1920
DAVIS, TONY, 425 North Allen St., Marshall, Mo.	1927
DAY, CHESTER SESSIONS, 16 Browne St., Brookline 47, Mass.	1897
DEAN, ROBERT HENRY, 720 Quintard Ave., Anniston, Ala.	1913
DEANE, GEORGE CLEMENT, 80 Sparks St., Cambridge, Mass.	1899
DEAR, MAJOR LIONEL SEXTUS, P. O. Box 89, Port Arthur, Ont., Can. .	1928
DEARBORN, SAMUEL STEPHEN, 43 Linnaean St., Cambridge, Mass. .	1919
DECK, RAYMOND STRICKLER, Kew Gardens Terrace Apts., Kew Gardens, N. Y.	1927
DEFREMERY, HERMAN, Box 25, Berkeley, Calif.	1927
DEGARIS, DR. CHARLES FRANCIS, Johns Hopkins Univ., Baltimore, Md.	1923
DEIGNAN, HERBERT GIRTON, Chiangmai, Siam.	1925
DELOACH, ROBERT JOHN HENDERSON, 5541 Dorchester St., Chicago, Ill.	1910
DELURY, DR. RALPH EMERSON, Dominion Observatory, Ottawa, Ont., Can.	1920
DEMILLE, JOHN BLAKENEY, 982 Cote des Neiges Rd., Montreal, Can.	1922
DENLEY, CHARLES F., Rockville, Md.	1927
DENMEAD, TALBOTT, Biological Survey, Washington, D. C.	1923
DENNY, MISS MARTHA, 111 High St., Brookline, Mass.	1924
DENSMORE, MISS MABEL, 910 4th St., Red Wing, Minn.	1910
DEPREE, CON, 129 W. 12th St., Holland, Michigan.	1928
DERBY, DR. RICHARD, Oyster Bay, L. I., N. Y.	1898
DESCHAUENSEE, RODOLPHE MEYER, 1213 Spruce St., Philadelphia, Pa. .	1925
DICKENS, MISS ELIZABETH, Block Island, R. I.	1921
DICKINSON, WILLIAM STIRLING, 314 Pyne Hall, Princeton, N. J. .	1928
DILLE, FREDERICK MONROE, Valentine, Nebr.	1892
DINGLE, EDWARD VON SIEBOLD, Huger, S. C.	1920
DINGMAN, RUSSELL GORDON, Highland Crescent, York Mills, Ont., Can.	1926
DISE, MRS. MARY DAMERON, 5 Liberty St., Charleston, S. C.	1928
DIXON, ALEXANDER JAMES SEXTUS II, c/o U. G. I. Co., Broad and Arch Sts., Philadelphia, Pa.	1928

DOAK, WILLIAM CONWAY, 134 W. Coulter St., Germantown, Philadelphia, Pa.	1927
DONALDSON, JOHN JOSEPH, Greenville, Pa.	1925
DONOHO, MURRAY THOMPSON, The Balfour, 2000 16th St., N. W., Washington, D. C.	1925
DOOLITTLE, EDWARD ARTHUR, Box 44, Painesville, Ohio.	1921
DORSEY, GEORGE A., 324 West John Wesley Ave., College Park, Ga.	1926
DOUGAN, LEWIS MATTHEW, 940 Maple Pl., St. Louis, Mo.	1928
DREVER, HORACE, 12 W. Mt. Airy Ave., Philadelphia, Pa.	1928
DUBOIS, ALEXANDER DAWES, 3837 Sheridan Ave., S., Minneapolis, Minn.	(1905) 1918
DUDLEY, MRS. SARAH H., Lyman School Branch, Berlin, Mass.	1924
DUER, HARRY ELDON, 519 Schofield Bldg., Cleveland, Ohio.	1921
DUFOR, MISS LAURA EDNA, 1524 Boyd Ave., Racine, Wis.	1924
DUMONT, PHILIP ATKINSON, c/o L. H. Weir, Sharp Hill Road, Wilton, Conn.	1927
DUNBAR, MISS LULA, Rt. 1, Elkhorn, Wis.	1918
DUNCAN, ELLIS, JR., 313 Pyne Hall, Princeton, N. J.	1928
DUNCKER, DR. HANS, Weringeroderstrasse 22, Bremen, Germany.	1928
DUNKELBERGER, HARRY WARREN, P. O. Box 6, Flourtown, Montgomery Co., Pa.	1923
DUNN, JOHN WARNER GRIGG, 1033 Lincoln Ave., St. Paul, Minn.	1923
DUNNING, MRS. WARREN HALSEY, Summerville, S. C.	1928
DURBOROW, WILLIAM J., State Museum, Harrisburg, Pa.	1928
DURFEE, OWEN, 727 Madison St., Fall River, Mass.	1887
DURFEE, MRS. OWEN, 727 Madison St., Fall River, Mass.	1923
DYE, HAROLD GALPIN, 18 Conklin Ave., Rochester, N. Y.	1921
DYKE, ARTHUR CURTIS, 205 Summer St., Bridgewater, Mass.	1902
EANES, ROBERT HILL, 401 Park Place, Austin, Texas.	1923
EARL, THOMAS MASON, Rt. 2, Box 94, Xenia, Ohio.	1921
EARLE, OSBORNE, 17 Bates St., Cambridge, Mass.	1919
EARLE, SAMUEL LOWNDES, 1224 Niazuma Ave., Birmingham, Ala.	1928
EASTWOOD, SIDNEY KINGMAN, Elberon Apts., Bloomfield Sta., Pittsburgh, Pa.	1925
EATON, MISS MARY STONE, 8 Monument St., Old Concord, Mass.	1909
EATON, SCOTT HARRISON, Box 653, Lawrenceville, Ill.	1912
EATON, WARREN FRANCIS, c/o Wellington, Sears & Co., 66 Worth St., New York, N. Y.	1921
EDDY, J. H., 2834 Argyle Road, Birmingham, Ala.	1927
EDMONDS, JOHN, Royal Ontario Museum, Toronto, Ont., Can.	1926
**EDSON, JOHN MILTON, Marietta Road, Bellingham, Wash.	1886
EDSON, WILLIAM LLOYD GARRISON, 54 Fairview Ave., Rochester, N. Y.	1916
EDWARDS, DAVID KEMP, 280 Mariposa Ave., Rockcliffe, Ottawa, Ont.	1926
EDWARDS, JAMES LELAND, 27 Stanford Place, Montclair, N. J.	1928
EHEIM, JOSEPH MATHIOUS, 236 Adams St., S., Hutchinson, Minn.	1927
EHINGER, DR. CLYDE ERNST, 730 Grand Ave., Keokuk, Iowa.	1904

EIFRIG, PROF. CHARLES WILLIAM, Gustave, 1029 Monroe Ave., River Forest, Ill.....	1901
EKBLAW, WALTER ELMER, Box 341, North Grafton, Mass.....	1910
*ELDRIDGE, EVERETT, Chatham, Cape Cod, Mass.....	1928
ELLIOTT, MRS. JANE SHIELDS, 2900 Q St., N. W., Washington, D. C.....	1921
ELLIS, CHARLES WILLIAM HENRY, 1939 Biltmore St., N. W., Washington, D. C.....	1927
ELLIS, MRS. ELLA HAINES, 910 Grattan St., Los Angeles, Calif.....	1924
*ELLIS, RALPH, JR., 2420 Ridge Road, Berkeley, Calif.....	1924
ELLIS, RAYMOND BEDFORD, Aetna St., Connellsville, Pa.....	1926
ELROD, MRS. WALTER DEWITT, Box 103, Okmulgee, Okla.....	1924
EMERSON, WILLIAM OTTO, Route 1, Box 39, Hayward, Calif.....	1916
EMERY, FRANK HARDIE, c/o Sandoz Chemical Works Ltd., 119 Adelaide St., W., Toronto 2, Ont., Can.....	1928
EMILIO, SHEPHARD GILBERT, 7 Winter St., Salem, Mass.....	1922
EMLEN, ARTHUR COPE, "Awbury," Germantown, Philadelphia, Pa.....	1921
EMLEN, JOHN THOMPSON JR., 36 W. School Lane, Germantown, Phila., Pa.....	1925
*EMMET, COL. ROBERT TEMPLE, 48 Washington Ave., Schenectady, N. Y.....	1926
ENGLISH, ALMON OWEN, 105 Granby St., Norfolk, Va.....	1928
ERICHSEN, WALTER JEFFERSON, 2311 Barnard St., Savannah, Ga.....	1919
ERSKINE, RICHARD, Wenonah, N. J.....	1926
ESTEN, SIDNEY RAYMOND, R. R. 3, Pendleton, Ind.....	1925
EVANS, DR. EVAN MARTON, 550 Park Ave., New York, N. Y.....	1916
EVANS, VICTOR JUSTICE, Victor Bldg., Washington, D. C.....	1927
EVERETT, EDWARD ADDISON, 206 9th St., N. E., Waseca, Minn.....	1925
EZRA, ALFRED, Foxwaiten Park, Cobham, Surrey, England.....	1928
FAGAN, CHARLES LOUIS, Rt. 2, Box 58, Rahway, N. J.....	1922
FAIRMAN, MISS MARIAN, 4744 Kenwood Ave., Chicago, Ill.....	1920
FARGO, WILLIAM GILBERT, 506 Union St., Jackson, Mich.....	1923
FARLEY, FRANK LEGRANGE, Camrose, Alberta, Can.....	1920
FARLEY, JOHN MOYER, JR., 46 S. Broadway, White Plains, N. Y.....	1922
FAUVEL, BERTRAM A., 321 McLeod St., Ottawa, Ont., Can.....	1926
FAY, SAMUEL PRESCOTT, 2 Otis Place, Boston, Mass.....	1907
*FEARING, GEORGE R., 168 Beacon St., Boston, Mass.....	1924
FELGER, ALVA HOWARD, North High School, Denver, Colo.....	1898
FELL, MISS EMMA TREGO, Holicong, Bucks Co., Pa.....	1903
FERGUSON, HENRY LEE, 250 Park Ave., New York, N. Y.....	1920
*FERGUSON, HOMER LENOIR, Newport News Ship Bldg., Newport News, Va.....	1926
FERRIER, MISS JUDITH MADELINE, Hemsby Hall, Hemsby, Norfolk, England.....	1928
FESER, MRS. ESTELLA COSSAART, 840 W. 66th St., Chicago, Ill.....	1925
FESMIRE, A. R., c/o C. and M. Alliance, Hankow, China.....	1927

FIELD, MISS CAROLINE LOUISE, 3 Hampton Court, 1461 Mountain St., Montreal, Can.....	1928
FIELD, MRS. MARSHALL, 4 East 70th St., New York, N. Y.....	1926
FIELD, WILLIAM LUSK WEBSTER, Milton Acad., Milton, Mass.....	1920
FINFROCK, CHARLES MILLARD, 3186 Oak Road, Cleveland Heights, Ohio.....	1925
FISHER, MISS ELIZABETH WILSON, Ambler, Pa.....	1896
FISHER, DR. GEORGE CLYDE, American Mus. Nat. Hist., New York, N. Y.....	1908
FISHER, PROF. RICHARD THORNTON, Petersham, Mass.....	1924
FITZPATRICK, ARCHIE LEVERETTE, 2408 Colonial Ave., Waco, Texas.....	1927
FLEMING, JAMES MACARTHUR, Drumwalt, The Long Road, Cambridge, England.....	1928
FLETCHER, LAWRENCE BROWN, 54 Cotswold Road, Brookline, Mass.....	1921
FLETCHER, MRS. MARY ELIZABETH, Proctorsville, Vt.....	1898
FLORES, ISMAEL, 16 Basora St., Mayaguez, Porto Rico.....	1928
FLOYD, CHARLES BENTON, 454 Wolcott St., Auburndale, Mass.....	1916
FLOYD, J. L., 1009 Geo. D. Harter Bank Bldg., Canton, Ohio.....	1921
FOLEY, MISS MARY C., 1218 Fairmont St., N. W., Washington, D. C.....	1927
FOLLETT, RICHARD EDWARD, 2134 Dime Bank Bldg., Detroit, Mich.....	1926
FOOT, DR. NATHAN CHANDLER, 3560 Interwood Place, Clifton, Cin- cinnati, Ohio.....	1916
FORBES, RALPH EMERSON, 328 Adams St., Milton, Mass.....	1917
FORD, EDWARD RUSSELL, 5521 Wayne Ave., Chicago, Ill.....	1920
FORD, FRANCIS, 114 Allyn St., Holyoke, Mass.....	1927
FORD, MISS LOUISE PETIGRU, "The Heights," Aiken, S. C.....	1919
FOSTER, CAROLINE R., Mendham Road, Morristown, N. J.....	1928
*FOSTER, FRANCIS APHORP, Edgartown, Mass.....	1918
*FOSTER, FRANK B., P. O. Box 87, Haverford, Pa.....	1916
FOSTER, DR. GEORGE SANFORD, 967 Elm St., Manchester, N. H.....	1921
*FOSTER, JOHN H., P. O. Box H, Haverford, Pa.....	1927
FOWLER, FREDERICK HALL, 221 Kingsley Ave., Palo Alto, Calif.....	1892
FOWLER, HENRY WEED, Acad. Nat. Sciences, Philadelphia, Pa.....	1898
FOX, MISS CAROLINE A., Center Road, Hillsboro, N. H.....	1924
FOX, MISS JENNIE ETHEL, Sparkhill, Rockland Co., N. Y.....	1925
FRANCIS, LAWRENCE EDWARD, 300 N. 31st St., Corvallis, Oregon.....	1928
FRANCKE, MRS. L. J., Glen Head, L. I., N. Y.....	1924
FRANKEL, MRS. HENRY, 301 Tonawanda Drive, Des Moines, Iowa.....	1925
FRASER, DONALD, Johnstown, N. Y.....	1902
FRAZAR, MRS. MARSTON ABBOTT, 84 Abbottsford Road, Brookline, Mass.....	1925
FRAZIER, JOSEPH FRANKLIN, 724 Proctor Place, Independence, Mo.....	1928
FREER, RUSKIN SKIDMORE, Lynchburg College, Lynchburg, Va.....	1928
FRENCH, MRS. A. J., R. F. D. 1, Carlton, Ore.....	1921
FRENCH, DR. CHARLES E., 62 Holyrood Ave., Lowell, Mass.....	1923
FRENCH, CHARLES HENRY, 950 Washington St., Canton, Mass.....	1904

- FRENCH, MRS. CHARLES HENRY, 950 Washington St., Canton, Mass. 1908
 FRENCH, DANIEL CHESTER, 12 W. 8th St., New York, N. Y. 1922
 FRENCH, MRS. MENA VESTAL, Box 171, Wayland, Mass. 1923
 *FREY, MRS. EDITH KRIEGER, 814 3rd St., Jackson, Mich. 1923
 FRICKE, REINHOLD LEO, Carnegie Museum, Pittsburgh, Pa. 1927
 FRIEDMAN, RALPH, 32 Garden Place, Brooklyn, N. Y. 1921
 FRIEDRICH, GEORGE WALTER, 3029 Belmont Ave., Chicago, Ill. 1925
 FROST, ALLEN, 9 Holmes St., Poughkeepsie, N. Y. 1919
 FRY, MRS. GLADYS GORDON, 66 Eagle Rock Way, Montclair, N. J. 1925
 *FUGUET, HOWARD, 560 Bullitt Bldg., Philadelphia, Pa. 1919
 FUGUET, STEPHEN, Devon, Pa. 1927
 FULLER, ARTHUR BENNETT, 2717 Euclid Ave., Cleveland, Ohio. 1922
 FULLER, MRS. EDWARD ABBOTT, Brick House, Hancock, N. H. 1922
 FULLER, HENRY CORBIN, 3704 Huntington St., Washington, D. C. . 1916
 FUNK, MRS. ABRAHAM BENJAMIN, 649 Harwood Drive, Des Moines, Iowa 1924
 GANDER, FRANK FORREST, P. O. Box 395, East San Diego, Calif. . . 1926
 GANIER, ALBERT FRANKLIN, 2507 Ashwood Ave., Nashville, Tenn. . 1917
 GARBE, ROLLIN W., 307 Runnymede Rd., Toronto, Ont., Can. . . . 1926
 GARDINER, CHARLES BARNES, 175 W. Main St., Norwalk, Ohio. . . . 1903
 GARDNER, ASTON COLEBROOK, c/o Westminster Bank, Rowlands Road, West Worthing, Sussex, England. 1919
 GARDNER, CAPT. LEON LLOYD, Sternberg Hospital, Manila, P. I. . 1924
 GARDNER, MRS. WALTER HINCKLEY, Bucksport, Maine. 1920
 GARLAND, MISS CAROLINE H., 65 Silver St., Dover, N. H. 1924
 GARNETT, WILLIAM JEREMIAH, Ontario Agricultural College, Guelph, Ont., Can. 1928
 GATES, FRANK WARD RISDON, 33 Zion St., Hartford, Conn. 1928
 *GAUNTLETT, FREDERICK JOHN, 3225 18th St., N. W., Washington, D. C. 1925
 GAY, KARL EMMERICH, 2483 Lower Manoa Road, Honolulu, T. H. . 1926
 GEDDES, JOHN MACLAY, 331 High St., Williamsport, Pa. 1924
 GEIST, ROBERT MILLER, 811 Euclaire Ave., Bexley, Columbus, Ohio. 1923
 GIANINI, CHARLES ALFRED, Poland, N. Y. 1911
 GIFFORD, PAUL COFFIN, 73 Whittier Ave., Olneyville, R. I. 1921
 GIGNOUX, CLAUDE, 73 Tunnel Road, Berkeley, Calif. 1921
 GILBERT, MRS. F. M., Walpole, N. H. 1919
 GILLESPIE, JOHN ARTHUR, 313 Sharp Ave., Glenolden, Pa. 1923
 GILLESPIE, MRS. JOHN ARTHUR, 313 Sharp Ave., Glenolden, Pa. . . 1924
 GILLIAM, ROBERT ALLEN, 1123 Cedar Hill Ave., Sta. A., Dallas, Tex. 1920
 GILLIN, JAMES RHODES, Ambler, Pa. 1921
 GILLIS, FRANK, 508 Park St., Anoka, Minn. 1922
 GILMAN, MARSHALL FRENCH, Banning, Calif. 1907
 GILMORE, MRS. ALBERT ESTES, 2215 E. Admiral Blvd., Tulsa, Okla. 1927
 GILMORE, ALBERT F., 84 Garfield St., Watertown, Mass. 1924
 GLADDING, MRS. JOHN RUSSELL, Thompson, Conn. 1912

GLEASON, MRS. CLARK HOUGH, 51½ S. Professor St., Oberlin, Ohio	1917
GLENN, DONALD, Box 243, Franklin, Pa.	1923
GLOYD, HOWARD KAY, Dept. Zool., State Agric. Coll., Corvallis, Oregon	1920
GODCHARLES, DR. FREDERICK ANTES, State Librarian, Harrisburg, Pa.	1928
GOELITZ, WALTER ADOLPH, 22 Nunda Boulevard, Rochester, N. Y.	1916
GOELLNER, REV. EUGENE, St. Anselm's College, Manchester, N. H.	1928
GOLDSMITH, GLENN WARREN, 123 E. Washington St., Colorado Springs, Colo.	1926
GOOD, PROF. HENRY GEORGE, Alabama Polytechnic Inst., Auburn, Ala.	1925
GOOD, NEWELL EMANUEL, 1811 Irving St., N. W., Washington D. C.	1927
GOODHART, LEANDER McCORMICK, 1785 Mass. Ave., N. W., Washington, D. C.	1927
GOODRICH, MISS JULIET THEODOSIA, Land o' Lakes, Vilas County, Wis.	1904
GORDON, HARRY EDGAR, 307 Laburnum Crescent, Rochester, N. Y.	1911
GORDON, JOHN GORDON McHAFFIE, Corsemalzie, Whauphill, Wigtownshire, Scotland	1928
GORDON, KENNETH, Dept. Zool., State Agric. Coll., Corvallis, Oregon	1924
GORDON, ROBERT BENSON, 2281 Indianola Ave., Columbus, Ohio	1923
GORDON, SETH EDWIN, 1218 Greenleaf St., Evanston, Ill.	1924
GORMLEY, A. LIGUORI, 79 John St., N., Arnprior, Ont. Can.	1918
GORST, CHARLES CRAWFORD, 28 Beauford Road, Boston 30, Mass.	1916
GOULD, JOSEPH EDWARD, 320 Springfield Ave., Campostella Heights, Norfolk, Va.	1889
GOWANS, MISS ETHEL, 308 S. Lincoln St., Kent, Ohio	1921
GRANGER, WALTER WILLIS, Amer. Mus. Nat. Hist., New York, N. Y.	1891
GRANQUIST, HARRY, Waited, Pa.	1928
GRANT, CLEVELAND PUTNAM, Field Museum, Chicago, Ill.	1924
GRANT, ERNEST ROSS, Hotel Roosevelt, Washington, D. C.	1927
GRANT, MARTIN LAWRENCE, 92 Morgan St., Oberlin, Ohio	1926
GRANT, WILLIAM WRIGHT, 816 S. Main St., Geneva, N. Y.	1910
GRASETT, F. G., 535 Green Bay Road, Glencoe, Ill.	1923
GRASS, ARTHUR MERRITT, 339 B. St., N. E., Linton, Indiana	1927
GRAVES, MRS. CHARLES BURR, 43 Granite St., New London, Conn.	1905
GRAY, ALWYN EVERETT, 1021 Manzanita Court, Albuquerque, N. M.	1923
GRAY, GEORGE W., Greenvale Farm, Poughkeepsie, N. Y.	1920
GREELEY, JOHN RICHARD, 241 Linden Ave., Ithaca, N. Y.	1925
GREEN, MISS BESSIE R., Zool. Dept., Oregon State College, Corvallis, Oregon	1928
GREEN, EDWIN LUTHER JR., 328 Moore St., Columbia, S. C.	1928
GREEN, PROF. GEORGE REX, 511 South Atherton St., State College, Pa.	1927
*GREEN, MORRIS MILLER, 39 Wyoming Ave., Ardmore, Pa.	1921
GREENE, EARLE ROSENBURY, P. O. Box 861, Atlanta, Ga.	1921

GREENOUGH, HENRY VOSE, 39 Worthington Road, Brookline, Mass.	1901
GREENWELL, GUY AYTCH, 900 East 7th St., Joplin, Mo.	1928
GREENWOOD, CHRISTOPHER, Rt. 1, Lausana, Alberta, Can.	1926
GREGORY, REV. CAREY ELLIS, Box 215, Morgantown, N. C.	1922
GREGORY, STEPHEN STRONG, JR., Box N, Winnetka, Ill.	1906
GREVE, FREDERICK JOHN, 526 Grant Ave., Brooklyn, N. Y.	1926
GRIFFITHS, MISS JANET R., 289 East Park Ave., Highland Park, Ill.	1926
GRIMES, SAMUEL ANDREW, 3615 Mayflower St., Jacksonville, Fla.	1925
GROMME, OWEN JUSTUS, Public Museum, Milwaukee, Wis.	1924
GUERNSEY, RAYMOND GANO, Eden Terrace, Poughkeepsie, N. Y.	1928
GUNTORP, DR. HORACE, University Station, Tucson, Ariz.	1919
HACHISUKA, HON. MASAUJI U., Mita Shiba, Tokyo, Japan	1927
HADELER, EDWARD WILLIAM, 336 S. State St., Painesville, Lake Co., Ohio	1920
HADLEY, ALDEN HERVEY, Nat. Assn. Audubon Societies, 1974 Broad- way, New York, N. Y.	1906
HAGENBECK, LORENZ, Königstr. 45, Lokstedt, Hamburg, Germany	1928
HAGNER, DR. FRANCIS RANDALL, 1824 19th St., N. W., Washington, D. C.	1926
HAHN, WM. JR., 403 Durst Ave., Greenwood, S. C.	1925
HAILE, HENRY PENNINGTON, Hanover, N. H.	1919
HAINES, ROBERT LEE, 111 Pinehurst Lane, Moorestown, N. J.	1924
HALDEMAN, MISS DORIS WEISS, E. Mt. Airy Ave., Philadelphia, Pa.	1927
HALE, EZRA A., 218 Edgerton St., Rochester, N. Y.	1927
HALE, WILLIAM BARTON, 19 Prince St., Rochester, N. Y.	1928
HALES, BENJAMIN JONES, Normal School, Brandon, Man., Can.	1927
HALLINAN, THOMAS, 293 19th Ave., Paterson, N. J.	1919
HALLINEN, JOSEPH EDWARD, Rt. 1., Cooperton, Okla.	1919
HALLMAN, ROY CLINE, Box 847, St. Augustine, Fla.	1928
HALLOWELL, FRANK WALTON, 252 Summer St., Boston, Mass.	1927
HALVERSON, DR. HAROLD MARTIN, 312 Pearl St., Yankton, S. Dak.	1924
HAMILL, MRS. LAFAYETTE C., 477 Grove St., Worcester, Mass.	1924
HAMILTON, WILLIAM JOHN, JR., Dept. Biology, Cornell Univ., Ithaca, N. Y.	1924
HAMMOND, DR. ROLAND, 41 Boylston Ave., Providence, R. I.	1924
HANDLEY, CHARLES OVERTON, 403 E. Jefferson St., Thomasville, Ga.	1916
HANDSAKER, RALPH, Colo, Iowa	1922
HANKINSON, THOMAS LEROY, 96 Oakwood Ave., Ypsilanti, Mich.	1897
HANNA, WILSON CREAL, 141 East F. St., Colton, Calif.	1919
HARDING, MRS. RICHARD BRUCE, 94 Westbourne Terrace, Brook- line, Mass.	1922
HARING, MRS. INEZ MARIA, Woodland, Ulster Co., N. Y.	1921
HARKIN, HON. JAMES BERNARD, Commr. Canadian Nat. Parks, Otta- wa, Can.	1921
HARRINGTON, MRS. ALICE BOWERS, Lincoln, Mass.	1919
HARRINGTON, DR. PAUL, 813 Bathurst St., Toronto, Ont., Can.	1922

*HARRIS, WILLIAM PICKETT, 15410 Windmill Point Drive, Grosse Pointe Parks, Mich.....	1925
*HARRISON, GEORGE LEIB, JR., 1520 Locust St., Philadelphia, Pa ..	1919
HART, CECIL, 132 N. 3rd St., Montebello, Los Angeles Co., Calif....	1921
HART, MALCOLM DUNCAN, Ashland, Va.....	1924
HART, WILLIAM STEPHEN, Box 1185, Montreal, Que., Can.....	1926
HARTER, SAMUEL GEORGE, 3848 3rd St., San Diego, Calif.....	1926
HARTLEY, GEORGE INNESS, Southampton, L. I., N. Y.....	1919
HARVEY, JOHN LEGRAND, Mercantile Bldg., Waltham, Mass.....	1916
HARVEY, ROGER DOUGLAS, Cerro de Pasco, Peru.....	1927
HASBROUCK, HENRY CRANE, 895 West End Ave., New York, N. Y.....	1920
*HASKELL, MISS SADIA, 3828 30th St., Mt. Rainier, Md.....	1916
HASTINGS, WALTER ERNEST, 310 Maple St., Howell, Mich.....	1921
HATHAWAY, ALTON HASTINGS, 25 Oakland St., Lexington, Mass....	1921
HATHAWAY, MRS. EMILY LOUISE, Spring St., Rt. 1, W. Bridgewater, Mass.....	1920
HATHAWAY, HENRY SEDGEWICK, Norwood and Thorn Aves., South Auburn, R. I.....	1897
HAULTAIN, CHARLES FREDERICK, Quirte Fox Ranch, Belleville, Ont., Can.....	1923
HAUSMAN, DR. LEON AUGUSTUS, 259 Harrison Ave., New Brunswick, N. J.....	1928
HAUTHAWAY, CLARENCE LITTLE, 346 Congress St., Boston, Mass....	1927
HAVEMEYER, HENRY OSBORNE, Mahwah, N. J.....	1893
HAVEMEYER, HENRY OSBORNE, JR., Mahwah, N. J.....	1919
HAVEN, HERBERT MAURICE WEST, 500 Forest Ave., Portland, Maine	1920
HAWEIS, STEPHEN, Nat. Zoological Park, Washington, D. C.....	1927
HAWORTH, MISS MARY MAUD ALICE, Mosscroft, Edgeworth, Sewickley, Pa.....	1925
HAYES, MRS. EDWIN AUGUSTUS, 466 Elm St., New Haven, Conn....	1927
HAYES, SAMUEL P., JR., South Hadley, Mass.....	1924
HEARSEY, EDWARD, 21 Davis Ave., East Orange, N. J.....	1927
HEBARD, DANIEL LEARNED, Morris Bldg., Philadelphia, Pa.....	1928
HEGEMAN, MRS. CHARLES STEDMAN, 16 Wilde Place, Montclair, N. J..	1923
HEGNER, FRANCIS ARNOLD, 513 Hill St., Sewickley, Pa.....	1924
HEILFURTH, FRITZ, Colegio Aleman, Estrada de la Piedad, City of Mexico D. F., Mexico.....	1926
HEILNER, VAN CAMPEN, Spring Lake Beach, N. J.....	1925
*HELME, ARTHUR HUDSON, Miller Place, N. Y.....	1888
HELMUTH, WILLIAM TOD, 3RD, 182 W. 58th St., New York, N. Y....	1923
HEMPHILL, ASHTON ERASTUS, 598 Dwight St., Holyoke, Mass.....	1919
HENDERSON ARCHIBALD DOUGLAS, Belvedere, Alberta, Can.....	1924
HENDERSON, JUNIUS, 1305 Euclid Ave., Boulder, Colo.....	1903
HENDERSON, WALTER CLEVELAND, 8 Magnolia Parkway, Chevy Chase, Md.....	1917
HENSHAW, SAMUEL, 28 Fayerweather St., Cambridge, Mass.....	1924

HERMAN, MRS. ERVINE OLNEY, Momence, Ill.	1928
HERMAN, DR. WILLIAM CEPHAS, 19 West 7th St., Cincinnati, Ohio	1921
*HERRICK, HAROLD, 95 Maiden Lane, New York, N. Y.	1905
HIATT, BENJAMIN C., 119 E. Montgomery Ave., Ardmore, Pa.	1925
HIBBERT, MRS. HAROLD, 17 Parkside Place, Cote de Neiges Road, Montreal, Que., Can.	1926
*HIGHAM, WALTER ERNEST, The Oaks, Clayton-le-Dale, near Black- burn, England	1928
HILDRETH, MISS ELLEN ELIZABETH, 126 Coolidge Hill. Cambridge, Mass.	1922
HILL, MRS. THOMAS R., 4011 Baltimore Ave., Philadelphia, Pa.	1903
HILLMER, DAVIS BRADLEY, 453 Canfield Ave. W., Detroit, Mich.	1926
HINCKLEY, GEORGE LYMAN, Old Colony Trust Co., P. O. Box 363, Boston, Mass.	1912
HINE, ASHLEY, 8131 Euclid Ave., Chicago, Ill.	1922
*HINE, PROF. JAMES STEWART, Ohio State Univ., Columbus, Ohio	1899
HITCHCOCK, FRANK HARRIS, Metropolitan Club, 1 East 60th St., New York, N. Y.	1921
HIX, GEORGE EDWARD, 337 72nd St., Brooklyn, N. Y.	1904
HOFFMAN, EDWARD CARLTON, 1041 Forest Cliff Drive, Lakewood, Ohio	1928
HOFFMAN, IRVIN NEWTON, 1513 30th St., N. W., Washington, D. C.	1924
HOFFMAN, PAUL WILLIAM, 1573 12th St., Milwaukee, Wis.	1924
HOLLAND, HAROLD MAY, Galesburg, Ill.	1910
HOLLAND, DR. WILLIAM JACOB, Carnegie Museum, Pittsburgh, Pa.	1899
HOLLISTER, GEORGE BUELL, 4 E. 5th St., Corning, N. Y.	1919
HOLLISTER, WARREN DALE, Delavan, Wis.	1901
HOLLOMAN, MRS. REED, Miraflores, Santa Fe, N. M.	1924
HOLMAN, JOHN PAULISON, Fairfield, Conn.	1922
HOLMAN, RALPH HOWARD, 181 Harvard St., Brookline, Mass.	1907
HOLMES, CHARLES FREDERICK, Dollard, Sask., Can.	1927
HOLTZINGER, HANS, Holtzingerstr. 4, Oldenburg i. O., Germany	1928
HOMER, FRED L., 270 N. Craig St., Pittsburgh, Pa.	1924
HONYWILL, ALBERT WILLIAM, JR., 17400 Wildemere Ave., Detroit, Mich.	1907
HOPKINS, GEORGE IRVING, 841 Beech St., Manchester, N. H.	1922
HORSEY, RICHARD EDGAR, Highland P'k, Reservoir Ave., Rochester, N. Y.	1919
HORSFALL, ROBERT BRUCE, c/o Nature Magazine, 1214 16th St., N. W., Washington, D. C.	1905
HOSKINSON, PROF. CLARENCE EDWIN, Box 224, Clarinda, Iowa	1928
HOUGHTON, CLARENCE, 433 Clinton Ave., Albany, N. Y.	1920
HOWARD, HILDEGARDE, 973 North Normandie Ave., Hollywood, Calif.	1928
HOWATT, DR. G. A., 1922 F. St., Eureka, Calif.	1924
HOWE, CLIFTON DURANT, Univ. Toronto, Toronto, Ont., Can.	1921
HOWELL, JOSEPH, 914 Lucern Terrace, Orlando, Florida	1928

HOWITT, HENRY, 52 Lyon Ave., Guelph, Ont., Can.....	1924
HOWLAND, HENRY RAYMOND, Buffalo Mus. of Science, Humboldt Park, Buffalo, N. Y.....	1924
HOWLAND, RANDOLPH HUGHBERT, 164 Wildwood Ave., Upper Mont- clair, N. J.....	1902
HUBBARD, MRS. FRANK DEXTER, 81 Barnett St., New Haven, Conn.....	1923
HUBBARD, HUGH WELLS, American Board Missions, Paotingfu, China.....	1928
HUBBARD, PROF. MARIAN ELIZABETH, Hallowell House, Wellesley 81, Mass.....	1916
HUBER, MRS. WHARTON, 225 St. Marks Square, Philadelphia, Pa.....	1926
HUDSON, GEORGE ELFORD, 1319 R. St., Lincoln, Nebr.....	1928
HUEY, LAWRENCE MARKHAM, Nat. Hist. Mus., Balboa Park, San Diego, Calif.....	1920
HUFF, PROF. NED L., 1219 7th St., S. E., Minneapolis, Minn.....	1924
HUGHES, GEORGE THOMAS, Box 153, Plainfield, N. J.....	1919
HUGHES, DR. WILLIAM E., 3945 Chestnut St., Philadelphia, Pa.....	1920
HULL, ARCHIE VILAN, 423 West Forest St., Brigham City, Utah.....	1926
HULSBURG, EDMUND FRANK, 340 S. Catherine Ave., La Grange, Ill.....	1928
HUNN, JOHN TOWNSEND SHARPLESS, 1218 Prospect Ave., Plainfield, N. J.....	1895
HUNSAKER, WALTER J., 430 N. Jefferson Ave., Saginaw, Mich.....	1928
HUNT, CHRESWELL JOHN, 810 S. 18th Ave., Maywood, Ill.....	1919
HUNT, MISS HELEN C., Brush Hill Road, P. O. Hyde Park, Milton, Mass.....	1928
HUNT, MISS LUCY O., 185 Beacon St., Hartford, Conn.....	1919
HUNTER, MRS. KATHARINE UPHAM, Cupola Farm, West Claremont, N. H.....	1923
HURD, MISS FRANCES AMELIA, 43 West Ave., S. Norwalk, Conn.....	1919
HUTCHISON, MRS. A. K., 286 Sherbrooke St., W., Montreal, Can.....	1927
*HUYLER, COULTER DUNHAM, 17 East 45th St., New York, N. Y.....	1928
HUYLER, MRS. COULTER DUNHAM, Box 235, Charleston, S. C.....	1928
HYDE, A. SIDNEY, Vivarium Bldg., Wright & Healy Sts., Champaign, Ill.....	1921
HYDE, BENJAMIN TALBOT BABBITT, 558 Camino del Monte Sol, Santa Fe, N. M.....	1925
HYDE, MRS. SILKMAR ELTING, Mayfield, Idaho.....	1918
HYSLOP, SAMUEL, 42 Bellevue St., Newton, Mass.....	1919
ICKES, RAYMOND, 900 S. Private Road, Hubbard Woods, Ill.....	1928
IJAMS, HENRY PEARLE, R. F. D. 9, Knoxville, Tenn.....	1922
INGALLS, MRS. LLOYD OSCAR, 227 W. 8th St., Oklahoma City, Okla.....	1925
**INGERSOLL, ALBERT MILLS, 908 F St., San Diego, Calif.....	1885
INGERSOLL, ROBERT STURGIS, 1035 Land Title Bldg., Philadelphia, Pa.....	1925
INGRAM, GEOFFREY CHESOLDEN SPENCER, 22 Waterloo Road, Roath, Cardiff, South Wales.....	1928

ISHAM, CHARLES BRADLEY, 909 Valley Rd., Upper Montclair, N. J.	1891
JACKSON, DR. HARTLEY HARROD THOMPSON, Biological Survey, Washington, D. C.	1910
JACOBS, MISS MARTHA LOUISE, 404 S. Washington St., Waynesburg, Pa.	1927
JACOBS, WILLIAM FRANCIS, 404 S. Washington St., Waynesburg, Pa.	1924
JACOT, EDWARD CESAR, Box 462, Prescott, Ariz.	1923
JAMES, MRS. ALVIN O., 4100 Grove Ave., Richmond, Va.	1925
JAMES, NORMAN, P. O. Drawer D2, Baltimore, Md.	1913
JANVRIN, DR. EDMUND RANDOLPH PEASLEE, 38 East 85th St., New York, N. Y.	1919
JAQUES, FRANCIS LEE, Amer. Mus. Nat. Hist., New York, N. Y.	1924
JARRARD, MISS BERMA LUCILLE, 733 Frederica St., N. E., Apt. 5, Atlanta, Ga.	1928
JAY, WILLIAM, 12 Westview St., Mt. Airy, Philadelphia, Pa.	1921
JELIER, F. P., Groote Visscherijstraat 19a, Rotterdam, Holland.	1928
JENKS, CHARLES WILLIAM, Bedford, Mass.	1912
JENKS, RANDOLPH, Mt. Kemble, Morristown, N. J.	1928
JENNINGS, DR. GEORGE HERMAN, Jewett City, Conn.	1918
JENNINGS, RICHARD DUDLEY, 227 Harrison St., East Orange, N. J.	1913
JENNISON, FRANCIS JOSEPH, Box 939, Marquette, Mich.	1925
JENSEN, JENS KNUDSEN, Canyon Road, Sante Fe, N. M.	1912
JENSEN, JESSE PETER, Box 364, Dassel, Minn.	1926
*JOHNSON, CHARLES ALFRED, 1030 15th St., Denver, Colo.	1927
JOHNSON, PROF. CHARLES EUGENE, College of Forestry, Syracuse, N. Y.	1919
JOHNSON, MRS. GRACE PETTIS, Museum Nat. Hist., Springfield, Mass.	1908
JOHNSTON, ISRAEL HAYLOCK, South Hills, Charleston, W. Va.	1922
JONES, HAROLD CHARLES, 352 W. College St., Oberlin, Ohio.	1924
JONES, DR. LOMBARD CARTER, Falmouth, Mass.	1917
JONES, NELSON TAYLOR, Royal Ontario Mus., Toronto, Ont., Can.	1925
JONES, SOLOMON PAUL, 509 West Ave., North, Waukesha, Wis.	1920
JONES, WILLIAM FROST, Norway, Maine.	1918
**JORDAN, ALVAH HENRY BEDELL, Lowell, Wash.	1888
JUMP, MRS. EDWIN ROBERT, 97 Oakleigh Road, Newton, Mass.	1910
JUNG, CLARENCE SCHRAM, 518 Stratford Ct., Milwaukee, Wis.	1921
JUNK, DR. WILHELM, Sachsische Strasse 68, Berlin, W. 15, Germany	1928
KAHL, PAUL HUGO ISADOR, Carnegie Museum, Pittsburgh, Pa.	1924
KAHMAN, KARL WILLIAM, Rt. 2, Hayward, Wis.	1925
KANE, MRS. SUSAN MARY, Vaughn, Wash.	1919
KEALY, MISS LULU, 14 Blackburn, Ave., Ottawa, Ont., Can.	1926
KEAYS, JAMES EDWARD, 328 St. George St., London, Ont., Can.	1899
KEE, HUNTER, 36 9th Ave., Marlinton, W. Va.	1920
KEESLER, RAY L., Box 147, Forestville, Butler Co., Pa.	1924
KELLEY, NORMAN PANTON, 625 Oriole Parkway, Toronto, Ont., Can.	1927
KELLOGG, RALPH TODD, Silver City, N. M.	1913

KELLY, ORVAL EDGAR, P. O. Box 28, Warkworth, Ont., Can.....	1926
KELLY, WILLIAM NIELSON, Terminal City Club, Vancouver, B. C., Can.....	1927
KELSO, DR. JOHN EDWARD HARRY, Edgewood, Lower Arrow Lake, B. C., Can.....	1915
KEMSIES, EMERSON, 37 Morgan St., Oberlin, Ohio.....	1927
KENDEIGH, SAMUEL CHARLES, Rt. 2, Amherst, Ohio.....	1923
KENNEDY, DR. HARRIS, Readville 37, Mass.....	1916
*KENNEDY, HARRY HOWARD, Box 710, Reno, Nev.....	1920
KENNEDY, HOMER NEY, 16219 Wisconsin Ave., Detroit, Mich.....	1924
KENNEDY, MRS. R. A., The Westminster, Ottawa, Ont., Can.....	1926
KENT, DUANE ELSON, 39 Moore Place, Rutland, Vt.....	1913
KENT, EDWARD GRUET, 9 Highland Ave., Madison, N. J.....	1919
KENT, EDWIN CLARK, 80 William St., New York, N. Y.....	1907
KEPNER, MRS. C. M., R. F. D. 2, Randallstown, Md.....	1922
KERMODE, FRANCIS, Provincial Museum, Victoria, B. C., Can.....	1926
KERN, SAMUEL BENJAMIN, 662 Main St., Slatington, Pa.....	1925
KERR, DR. WILLIAM, Ridotto Block, Bay City, Mich.....	1926
KERSHNER, CLAUDE HARRINGTON, 438 W. Bringham St., German- town, Philadelphia, Pa.....	1925
KEYES, MRS. CHARLES FREDERICK, 2225 Lake of Isles Blvd., Min- neapolis, Minn.....	1922
*KIDDER, NATHANIEL THAYER, Milton, Mass.....	1906
KIEFNER, CHARLES HAROLD, 2115 Second Nat. Bank Bldg., Houston, Texas.....	1926
KILGORE, WILLIAM, JR., Mus. of Nat. Hist., Univ. Minn., Minneapolis, Minn.....	1906
KILGUS, JOHN FRANK, JR., 422 High St., Williamsport, Pa.....	1922
KING, MISS GRACE WALKER, 11 Heath Hill, Brookline, Mass.....	1924
KING, IRVING J., Collins Center, Erie Co., N. Y.....	1924
KING, LEROY, 15 William St., New York, N. Y.....	1901
*KIRKHAM, STANTON DAVIS, 152 Howell St., Canandaigua, N. Y.....	1910
KIRKHAM, WILLIAM BARRI, 100 Mill St., Springfield, Mass.....	1922
KIRKPATRICK, DONALD N., 710 Clay Ave., Scranton, Pa.....	1926
KIRKPATRICK, HARRY CLAY, 1166 Water St., Meadville, Pa.....	1921
KIRKWOOD, FRANK COATES, R. F. D. 3, Monkton, Md.....	1892
*KIRN, ALBERT JOSEPH BERNARD, Box 157, Somerset, Texas.....	1918
KITTREDGE, JOSEPH, JR., Lake States Forest Exp. Sta., Univ. Farm, St. Paul, Minn.....	1910
KLINCK, NORMAN E., 38 West Parade Ave., Buffalo, N. Y.....	1928
KLOSEMAN, MISS JESSIE EMMA, Beal Hall, 20 Charlesgate W., Boston, Mass.....	1909
*KLOTZ, CHARLES DOLESE, 722 Prospect Ave., Winnetka, Ill.....	1923
KNAEBEL, ERNEST, 3707 Morrison St., Washington, D. C.....	1906
KNAPPEN, MISS PHOEBE MALURA, 2925 Tilden St., N. W., Wash- ington, D. C.....	1924

KNAPPEN, MRS. THEODORE MACFARLANE, 2925 Tilden St., N. W., Washington, D. C.....	1926
KNAUZ, MISS MARIE BERTHA, 1217 Trevanion Ave., Regent Sq., Pitts- burgh, Pa.....	1924
*KNICKERBOCKER, CHARLES KENNEDY, 410 N. Michigan Ave., Chicago, Ill.....	1922
KOBBE, FREDERICK WILLIAM, 1155 Park Ave., New York, N. Y.....	1921
KOCH, DR. BASTIAN, Neuhuysskade 64, The Hague, Holland.....	1928
KOMAREK, EDWIN VOCLAV, Chicago Academy of Sciences, Chicago, Ill.....	1927
KRETZMANN, DR. PAUL EDWARD, 801 DeMun Ave., St. Louis, Mo.....	1913
KUBICHEK, WESLEY FRANK, Coe College, Cedar Rapids, Iowa.....	1919
KUERZI, JOHN FRANCIS, 978 Woodycrest Ave., Bronx, New York, N. Y.....	1925
KUMMERLOEWE, DR. HANS, Cichoriusstrasse 6 III, Leipzig-Reudnitz, Germany.....	1928
KUSER, MRS. ANTHONY RUDOLF, Bernardsville, N. J.....	1910
KUSER, JOHN DRYDEN, Bernardsville, N. J.....	1910
KUTCHIN, DR. VICTOR, Green Lake, Wis.....	1922
LABARTHE, JULES, 148 Kingsway, Winnipeg, Man., Can.....	1920
LABRIE, WILLIE, Kamouraska (Moulin), Que., Can.....	1927
LACEY, MILTON S., 875 Main St., Bridgeport, Conn.....	1925
LA DOW, STANLEY VAUGHAN, 56 W. 12th St., New York, N. Y.....	1913
LA FRANCE, PHILIP ALBERT, Lacombe, N. H.....	1926
LAFRANCHISE, MISS MARY LOUISA YVONNE, 47 Sherbrooke Ave., Hull, Que., Can.....	1921
LAING, HAMILTON MACK, Comox, B. C., Can.....	1917
LAING, MISS MARY ELIZABETH, Granville, N. Y.....	1927
LAMB, CHARLES REUBEN, 161 Summer St., Boston, Mass.....	1912
LAMB, CHESTER CONVERSE, Museum Vert. Zool., Univ. Calif., Berkeley Calif.....	1926
LANCASHIRE, MRS. JAMES HENRY, 11 East 69th St., New York, N. Y.....	1909
LANCELEY, WILLIAM HENRY, 23 Elmdale Ave., Ottawa, Ont., Can.....	1926
LANDI, FLORINDO, 59 Ossining Rd., Pleasantville, N. Y.....	1925
LANG, HARRY MORSE, 1538 Rockland Ave., Beechwood, Pittsburgh, Pa.....	1924
LANG, HERBERT, Am. Mus. Nat. Hist., New York, N. Y.....	1907
LANGDON, ROY MONROE, 329 Elizabeth St., Fort Collins, Colo.....	1918
LANGELIER, GUSTAVE ADOLPHE, Cap Rouge, Que., Canada.....	1923
LANGSTROTH, JAMES HEIDEL, "Bin D," Silver City, N. M.....	1924
LARRABEE, PROF. AUSTIN PARK, Yankton College, Yankton, S. Dak.....	1918
LASTRETO, CHARLES BARTHOLOMEW, 260 California St., San Francisco, Calif.....	1919
LATHAM, ROY, Orient, L. I., N. Y.....	1916
LAURENT, PHILIP, 31 E. Mt. Airy Ave., Philadelphia, Pa.....	1902

LAWRENCE, ALEXANDER GEORGE, City Health Dept., Winnipeg, Man., Can.	1920
LAWRENCE, ROBERT BOWNE. 411 Westmoreland Ave., Houston, Texas (1883) 1923	
LAWSON, DR. ELSTON HARMON, Ganges, B. C., Can.	1927
LAWSON, RALPH, 88 Washington Sq. East, Salem, Mass.	1917
LAZEAR, JOHN MCKELVY, 922 S. Negley Ave., Pittsburgh, Pa.	1922
LEACH, FRANK ALEMAN, Diablo, Calif.	1921
LEARNED, MISS AGNES MAY, Wilkins St., Hudson, Mass.	1920
LEE, HENRY EDWIN, Box 495, Rapid City, S. D.	1925
LEFEVRE, RUFUS HARRY, Seneca Castle, Co., N. Y.	1927
LEFFINGWELL, PROF. DANA JACKSON, Science Hall, Washington State Coll., Pullman, Wash.	1919
LEIGHTON, ALEXANDER HAMILTON, 11 Alexander St., Princeton, N. J.	1927
LEIGHTON, MRS. ARCHIBALD OGILVIE, Roberts and Conistego Rds., Rosemont, Pa.	1927
LEISTER, CLAUDE WILLARD, McGraw Hall, Ithaca, N. Y.	1916
LERMOND, NORMAN WALLACE, R. F. D. 1, Thomaston, Maine	1921
LETL, FRANK HENRY, Field Mus., Chicago, Ill.	1925
*LEVEY, MRS. WILLIAM MARSHALL. 58 Davis Ave., Brookline, Mass.	1915
LEVI, WENDELL MITCHELL, Sumter, S. C.	1928
LEWIS, HARRISON FLINT, Can. Nat. Parks, Ottawa, Ont., Can.	1912
LEWIS, MRS. HERMAN E., 180 Grove St., Haverhill, Mass.	1912
LEWIS, JOHN BARZILLAI, 304 Mitchell St., Ithaca, N. Y.	1924
LEWIS, MERRIAM GARRETSON, County Agent, Lexington, Va.	1924
LEWY, DR. ALFRED, 2051 E. 72d Place, Chicago, Ill.	1922
L'HOMMEDIEU, J. F., Gen. Sec'y, Y. M. C. A., Thomasville, Ga.	1924
LINDSAY, ROBERT VINES, 61 Brookfield St., Toronto, Ont., Can.	1927
LINGS, GEORGE HERBERT, The Grange, Cheadle, Cheshire, England.	1913
LINSDALE, JEAN M., Mus. Vert. Zool., Berkeley, Calif.	1922
LINTON, MORRIS ALBERT, 315 East Oak Ave., Moorestown, N. J.	1928
LIPPINCOTT, JOSEPH WHARTON, 227 South 3th St., Philadelphia, Pa.	1926
LITTLE, MRS. EFFIE KEARNEY, R. F. D. 1, Lowell, Ind.	1922
LITTLE, LUTHER, 1400 Wayne Ave., S. Pasadena, Calif.	1913
LIVINGSTON, PHILIP ATLEE, P. O. Box 62, Wayne, Pa.	1927
LLOYD, MRS. WILMOT, 285 Mariposa Ave., Rockcliffe Park, Ottawa, Ont., Can.	1925
LOCKE, DR. EDWIN ALLEN, 311 Beacon St., Boston, Mass.	1920
LOCKWOOD, DEAN PUTNAM, 6 College Circle, Haverford, Pa.	1921
LODGE, FRED STERLING, 423 S. Stone Ave., La Grange, Ill.	1922
LOESCH, FRANK JOSEPH, 1540 Otis Bldg., 10 S. LaSalle St., Chicago, Ill.	1925
LONG, HARRY VINTON, 260 Clarendon St., Boston, Mass.	1920
LONGSTREET, RUBERT JAMES, 610 Braddock Ave., Daytona Beach, Fla.	1923
LOOMIS, LEE JOHNSON, 202 E. Union St., Union, N. Y.	1925

LÖPPENTHIN, BERNT OVE HARTVIG FABRICIUS, Sundholm, Copenhagen S, Denmark.....	1928
LORD, FREDERIC POMEROY, 39 College St., Hanover, N. H.....	1922
LORING, JOHN ALDEN, Owego, Tioga Co., N. Y.....	1917
LOTHROP, DR. OLIVER AMES, 101 Beacon St., Boston, Mass.....	1920
LOVERIDGE, ARTHUR, Mus. Comp. Zool., Cambridge, Mass.....	1924
LOW, ETHELBERT IDE, 256 Broadway, New York, N. Y.....	1907
LOW, WARWICK JAMES, 16 Highland Ave., Montreal, Que., Can.....	1923
LOWE, JOHN NICHOLAS, Specular St., Marquette, Mich.....	1925
LOWNES, ALBERT E., P. O. Box 1531, Providence, R. I.....	1924
LUM, EDWARD HARRIS, Chatham, N. J.....	1904
LUNN, MISS LULU M., 724 Villa St., Racine, Wis.....	1920
LUNN, MISS MARGARET ALLEN, University Women's Club, 1634 Eye St. N. W., Washington, D. C.....	1919
LYNES, REAR ADMIRAL HUBERT, R. N., 23 Onslow Gardens, London S. W. 7, England.....	1928
LYON, DR. MARCUS WARD, JR., 214 La Porte Ave., South Bend, Ind.....	1922
MACCOY, CLINTON VILAS, 1 Lenox Hall, 1213 Beacon St., Brookline, Mass.....	1920
MACFARLANE, MRS. D. H., Mont St. Hilaire, Que., Can.....	1928
MACGOWAN, W. LEROY, 3212 Park St., Jacksonville, Fla.....	1924
MACKAYE, JAMES, 6 College St., Hanover, N. H.....	1921
MACKWORTH-PRAED, CYRIL WINTHROP, Dalton Hill, Albury, Surrey, England.....	1928
MACLAY, MARK WALTON, JR., 44 Wall St., New York, N. Y.....	1905
MACLAREN, MISS CAROLINE ELIZABETH, Carleton Place, Ont., Can.....	1928
MACLEAY, CHARLES RODERICK, Sayabec, Que., Can.....	1927
MACLENNAN, JAMES PIRRIE, 454 42nd St., Brooklyn, N. Y.....	1924
MACLOGHLIN, MRS. FFORDE EDWARD, 43 Inglewood Drive, Hamilton, Ont., Can.....	(1923) 1926
MACMILLAN, WILLIAM TORBERT, 23 Pilgrim Road, Boston, Mass.....	1924
MACNUTT, ERNEST GERRARD, 4308 Montrose Ave., Montreal, Que., Can.....	1928
MACREYNOLDS, GEORGE, 76 E. State St., Doylestown, Pa.....	1917
MACTIER, ANTHONY DOUGLAS, Vice President Canadian Pacific Ry., Montreal, Que., Can.....	1928
MADDOCK, MISS EMELINE, Stoneleigh Court, Philadelphia, Pa.....	1897
MADDOX, GEORGE AMORY, 1837 Wyoming Ave., Washington, D. C.....	1926
MADISON, HAROLD LESTER, 2289 Grand View Ave., Cleveland Heights Ohio.....	1912
MAGEE, MICHAEL JARDEN, 603 South St., Sault Ste. Marie, Mich.....	1919
MAHER, JOHN EDWARD, 323 Pacific Ave., Jersey City, N. J.....	1902
MAIN, JOHN S., 2210 Van Hise Ave., Madison, Wis.....	1926
MALCOLMSON, HERBERT THOMAS, Glenorchy, Hawthornden Rd., Knock, Belfast, Ireland.....	1928
MANN, DR. WILLIAM M., Nat. Zool. Park, Washington, D. C.....	1925

MAPLES, ASHLEY KILSHAW, 33 London Road, Spalding, England.	1928
MARBLE, RICHARD MERRILL, Woodstock, Vt.	1907
MARBURGER, CLIFFORD, Denver, Pa.	1923
MARCOTTE, REV. LEON, St. Charles Seminary, Sherbrooke, Que., Can.	1921
MARDEN, AARON, Eagle Id., South Harpswell, Maine.	1924
MARKS, EDWARD SIDNEY, 655 Kearney Ave., Arlington, N. J.	1915
MARSHALL, ALFRED, Montrose, Baldwin Co., Ala.	1916
*MARSHALL, MRS. ELLA MARIA ORMSBY, New Salem, Mass.	1912
MARTIN, FRED IRVING, Rt. 1, Box 58, Manchester, N. H.	1921
MARTIN, NELSON, 257 A, Bartlett Ave., Toronto, Can.	1928
MASON, MISS ROSALIE, Beachton, Grady Co., Ga.	1928
MASTERS, WAYNE W., Box 54, Everton, Ind.	1927
MATHEWS, FERDINAND SCHUYLER, 17 Frost St., Cambridge, Mass.	1917
MATHEWS, FRANK PELLETREAU, 160 Kent St., Brookline, Mass.	1923
MATHEWS, ROBERT STUART, 49 West 52nd St., New York, N. Y.	1928
MATLACK, BENNETT K., 67 Cottage Ave., Bridgeton, N. J.	1924
MATTISON, MISS MARY FRANCES, 463 North St., Anderson, S. C.	1928
MAY, DR. JOHN BICHARD, South Main St., Cohasset, Mass.	(1916) 1922
MAYAUD, NOEL, 1 rue de Bordeaux, Saumur, Maine et Loire, France.	1927
MAYFIELD, DR. GEORGE R., Kissam Hall, Nashville, Tenn.	1917
MAYNARD, CHARLES JOHNSON, 457 Crafts St., W. Newton, Mass.	1921
MAYNARD, DR. HERBERT ERNEST, 464 Commonwealth Ave., Boston, Mass.	1921
MCCABE, T. T., Barkerville, B. C., Can.	1920
MCCALL, WILLIAM WHITE, Haverford, Pa.	1921
MCCANN, HORACE DOLBEY, Valley Road, Paoli, Pa.	1923
MCCLINTOCK, NORMAN, 504 Amberson Ave., Pittsburgh, Pa.	1900
MCCOKE, PHILIP JAMES, 413 E. 57th St., New York, N. Y.	1895
MCCRACKEN, MRS. J. W., 1524 Myrtle St., Scranton, Pa.	1926
MCCRIMMON, A. R., Montrose, Colo.	1924
MCDONALD, NORMAN JOHN, 201 Price Ave., Narberth, Pa.	1927
MCDUGALL, NEIL ALBAN, Summerside, P. E. I., Can.	1927
MCGAHEY, MISS PEARL HONORA, Canadian National Parks, Ottawa, Can.	1926
MCGEE, WILLIAM ELMER, Route 4, Nampa, Idaho.	1926
MCILHENNY, EDWARD AVERY, Avery Island, La.	1894
MCINTOSH, FRANKLIN G., 1520 Liberty St., Franklin, Pa.	1925
McKENNY, MISS MARGARET, Am. Mus. Nat. Hist., New York, N. Y.	1926
McKITTRICK, THOMAS HARRINGTON, JR., 28 Chelsea Park Gardens, London S. W. 3, England.	1928
McKONE, MRS. MARGARET A., R. R. 4, London, Ont., Can.	1927
McLAIN, ROBERT BAIRD, P. O. Box 132, Hollywood Sta., Los Angeles, Calif.	1893
McMILLAN, MRS. GILBERT NEWBERRY, 4640 Delafield Ave., River- dale on Hudson, New York, N. Y.	1902
McMULLEN, TURNER ELLSWORTH, 933 N. 5th St., Camden, N. J.	1920

MCNEIL, DR. CHARLES ANDREW, 111½ W. 4th St., Sedalia, Mo.	1919
MCNEIL, GEORGE MARTYN, 195 Lincoln St., Winthrop. Mass.	1920
MEAD, MRS. ELDORA MEHITABLE, 51 E. 78th St., New York, N. Y.	1904
MEAD, LYLE GAGE, 709 N. Pine Ave., Austin Sta., Chicago, Ill.	1921
MEDSEGER, OLIVER PERRY, 9 Columbia Ave., Arlington, N. J.	1919
MEGREW, ALDEN FRICK, 265 Clarendon St., Boston, Mass.	1923
MEIKLEJOHN, LT. COL. RONALD FORBES, c/o Lloyd's Bank Ltd. (Section F.), 6 Pall Mall, London S. W. 1, England.	1928
MELCHER, MRS. CHARLES W., 736 Randall St., Downers Grove, Ill.	1922
MELLEN, DR. ELEANOR, 291 Lake Ave., Newton Highlands, Mass.	1920
MENGEL, GEORGE HENRY, 739 Madison Ave., Reading, Pa.	1913
MENNINGER, DR. WILLIAM CLAIRE, 1280 Duane St., Topeka, Kans.	1919
MEREDITH, REX, 121 Monckton Ave., Quebec, Can.	1927
MERRIAM, DR. HENRY FRANKLIN, 165 Orange Heights Ave., W. Orange N. J.	1905
MERRILL, MRS. CHARLES HUDSON SAYRE, 95 Hinckley Road, Milton, Mass.	1924
MERRILL, DAYTON EUGENE, 5th and Sycamore Sts., Rogers, Ark.	1913
MERRIMAN, ROBERT OWEN, 101 Clergy St., W., Kingston, Ont., Can.	1920
*MERSHON, WILLIAM BUTTS, Saginaw, Mich.	1905
MESSER, DON VINAL, Huntington, Mass.	1924
METCALF, JESSE, 130 East 67th St., New York, N. Y.	1926
METCALF, DR. ZENO PAYNE, State College Station, Raleigh, N. C.	1913
*MEYER, MISS HELOISE, Lenox, Mass.	1913
MICHENER, HAROLD, 418 N. Hudson Ave., Pasadena, Calif.	1926
MIDDLETON, RAYMOND JONES, Marshall St. and Whitehall Road, Norristown, Pa.	1920
MILLEN, MISS CHARLOTTE, Standish Hall, Hull, Que., Can.	1928
MILLER, MISS BERTHA STUART, Capstone Farm, R. 3, Kingston, N. Y.	1915
MILLER, CHARLES, R. R. 1, London, Ark.	1927
MILLER, ISAAC P., 111 South 4th St., Philadelphia, Pa.	1925
MILLER, MISS MARY MANN, 5928 Hayes Ave., Los Angeles, Calif.	1921
MILLER, RICHARD FIELDS, 2627 North Second St., Philadelphia, Pa.	1928
MILLS, HERBERT H., Jenkintown Manor, Jenkintown, Pa.	1927
MILLS, WIER ROBSON, Pierson, Iowa	1920
MINER, JACK, Kingsville, Ont. Can.	1927
MINER, LEO DWIGHT, 2910 44th Place, N. W., Washington, D. C.	1913
MIRICK, HENRY DUSTIN, 3637 Locust St., Philadelphia, Pa.	1925
MITCHELL, MISS CATHARINE ADAMS, 144 Fairbank Road, Riverside, Ill.	1911
MITCHELL, MRS. OSBORNE SINDEN, 24 Wychwood Park, Toronto, 10, Ont., Can.	1928
MITCHELL, W. G., c/o Price Bros. Ltd., Quebec, Can.	1926
MITCHELL, DR. WALTON IUNGERICH, 1644 Visalia St., Berkeley, Calif.	1893
MITSCH, GRANT EMERSON, Brownsville, Ore.	1926
MOFFATT, EDWARD ELIAS, 146 Oak St., Winsted, Conn.	1926

MOFFITT, JAMES, 1879 Broadway, San Francisco, Calif.....	1926
MONK, HARRY CRAWFORD, Avoca Apts., Nashville, Tenn.....	1921
MOODY, ADELBERT JOHN, c/o Aetna Life Ins. Co., Hartford, Conn.....	1918
MOON, WILBUR DUXBURY, 46 Maple St., East Lynn, Mass.....	1926
MOORE, MRS. NETTIE LOUISE PURDY, 941 Starkwether Ave., Plymouth, Mich.....	1925
MOORE, WILLIAM HENRY, R. M. D. 1, Mouth Keswick, York Co., N. B., Can.....	1928
MOORHEAD, HORACE REYNOLDS, 12 East 31st St., New York, N. Y.....	1926
**MORCOM, GEORGE FREAN, 243 North Coronado St., Los Angeles, Calif.....	1886
MORE, ROBERT LEE, 1905 Wilbarger St., Vernon, Texas.....	1921
MOREHOUSE, BEAUMONT JOHN, Forestby, Branchville, Conn.....	1926
MOREY, MRS. LILLIAN DAME, Pinehurst Circle, Chevy Chase, Md.....	1924
MORGAN, BRENT MACFARLAND, 224 11th St., S. W., Washington, D.C.....	1919
*MORGAN, JOHN SAGE, 27 Circuit Road, Chestnut Hills, Mass.....	1927
MORRELL, DR. ARCH HIRAM, 210 Maine Ave., Gardiner, Maine.....	1923
MORRIS, MISS GRACE ALGER, Eagle Rock, Pa.....	1924
*MORRIS, DR. LEWIS RUTHERFORD, 60 W. 58th St., New York, N. Y.....	1923
MORRISON, ALVA, 100 Milk St., Boston, Mass.....	1915
MORSE, FRANK EUGENE, 162 Boylston St., Boston, Mass.....	1921
MORSE, GEORGE WASHINGTON, 318 East 9th St., Tulsa, Okla.....	1922
MORSE, HARRY GILMAN, Hufon, Ohio.....	1912
MORSE, MISS MARGARETTE ELTHEA, Viroqua, Wis.....	1919
MORTON, FRED C., Savannah Electric & Power Co., Savannah, Ga.....	1926
MOSELEY, PROF. EDWIN LINCOLN, Bowling Green, Ohio.....	1918
MOSLER, DR. EDUARD, Schwanenwerder, Berlin-Wannsee, Germany.....	1928
MOTT, JOHN JOSEPH, P. O. Box 1562, Winnipeg, Man., Can.....	1927
MOULTON, FRANCIS SEVERN, 155 Adams St., Milton, Mass.....	1926
MOULTON, HERBERT F., 132 North St., Ware, Mass.....	1920
MOYER, JOHN WILLIAM, 315 Home St., Georgetown, Ohio.....	1928
MUELLER, ALFRED L., 5820 N. Kilborne Ave., Chicago, Ill.....	1927
MUELLER, WALTER JOSEF, 580 Beverly Road, Milwaukee, Wis.....	1923
MULLER, CARL LURMAN, 31 East 65th St., New York, N. Y.....	1925
MUNTER, COMDR. WILLIAM HENRY, Pier No. 18, Stapleton, Staten Island, N. Y.....	1927
MURIE, OLAUS JOHAN. Jackson, Wyo.....	1913
MURPHY, MRS. GRACE EMELINE BARSTOW, 45 Oriole Ave., Bronxville, N. Y.....	1919
MURPHY, MISS LOUISE, 9 Summerhill Ave., Montreal, Que., Can.....	1926
MURRAY, EDGAR A., 757 Covington Drive, Detroit, Mich.....	1919
MURRAY, DR. GILBERT D., 528 Madison Ave., Scranton, Pa.....	1925
MURRAY, REV. JAMES JOSEPH, D.D., 6 White St., Lexington, Va.....	1928
MUSSELMAN, THOMAS EDGAR, 124 S. 24th St., Quincy, Ill.....	1922
MUSSER, JAMES, R. F. D. 2, East Earl, Lancaster Co., Pa.....	1928
MYERS, EVERETT C., DePauw University, Greencastle, Indiana.....	1924

MYERS, MRS. HARRIET WILLIAMS, 311 N. Ave. 66, Los Angeles, Calif.	1906
MYERS, ORD, 216th St. and 9th Ave., New York, N. Y.	1922
NAUMBURG, WALTER WEHLE, 14 Wall St., New York, N. Y.	1923
*NEELY, JAMES C., 135 High St., Brookline, Mass.	1919
NEFF, JOHNSON ANDREW, Neff Orchards, Marionville, Mo.	1919
NEFF, WILLIAM GRANT, 26 Wells Ave., Brantford, Ont., Can.	1926
NELSON, MISS THEODORA, Brooklyn Hunter College, 66 Court St., Brooklyn, N. Y.	1927
NETTING, GRAHAM, Carnegie Museum, Pittsburgh, Pa.	1925
NEWBIGIN, EDWARD KING, 62 Sparks St., Cambridge, Mass.	1924
NEWCOMB, CYRENIUS ADELBERT, JR., Rt. 3, Pontiac, Mich.	1920
NEWELL, MRS. H. S., Board of Trade Bldg., Duluth, Minn.	1926
NICE, MRS. MARGARET MORSE, 156 W. Patterson Ave., Columbus, Ohio.	1920
NICHOLS, LEON NELSON, 181 Claremont Ave., New York, N. Y.	1917
NICHOLS, RODMAN ARMITAGE, 27 Broad St., Salem, Mass.	1919
NICHOLSON, DONALD JOHN, P. O. Box 631, Orlando, Fla.	1925
NICHOLSON, WALTER ALEXANDER, Sea View Gardens, Gibson's Land- ing, near Vancouver, B. C., Can.	1928
NININGER, PROF. HARVEY HARLOW, 759 E. Euclid St., McPherson, Kans.	1920
NOKES, DR. IRWIN DANA, 1120 Rives Strong Bldg., Los Angeles, Calif.	1915
NORRIS, EDWARD, 301 W. Springfield Ave., Philadelphia, Pa.	1916
NORRIS, JOSEPH PARKER, JR., 2122 Pine St., Philadelphia, Pa.	1904
NORRIS, ROY, Route B, Richmond, Ind.	1925
NORTH, GEORGE BELFORD, 34 West 53rd St., New York, N. Y.	1928
O'BRIEN, JOHN ERWIN, JR., 225 E. 44th St., Savannah, Ga.	1926
*O'CONOR, JOHN CHRISTOPHER, 24 E. 33rd St., New York, N. Y.	1921
ODELL, THEODORE TELLAFSEN, Hobart College, Geneva, N. Y.	1926
OEHSER, PAUL HENRY, Biological Survey, Washington, D. C.	1925
OGDEN, DR. HENRY VINING, 436 Summit Ave., Milwaukee, Wis.	1897
O'LEARY, ARTHUR LAWRENCE, 1033 Lawrence St., N. E., Washington, D. C.	1926
OLENCHAK, THOMAS R., 815 Brook St., Scranton, Pa.	1927
OLIVER, MRS. JAMES CONNOR, 529 Moreland Ave., N. E., Atlanta, Ga.	1928
ORMSBY, MRS. OLIVER SAMUEL, 5756 Blackstone Ave., Chicago, Ill.	1925
ORTEGA, JAMES LEROY, Costa Mesa, Calif.	1923
OSBORN, HARRY, 303 N. Gladstone St., Kansas City, Mo.	1927
OSBORN, PROF. HENRY FAIRFIELD, Am. Mus. Nat. Hist., New York, N. Y.	1919
OSBORNE, ARTHUR AUGUSTUS, 183 Lowell St., Peabody, Mass.	1912
OSLER, HENRY S., 1 Rosedale Road, Toronto, Ont., Can.	1920
OSTROM, DRANK HILTON, 21 Prince Rupert Apts., 585 O'Connor St., Ottawa, Ont., Can.	1928
OTIS, MISS OLIVE, 81 Front St., Exeter, N. H.	1926

OVER, WILLIAM HENRY, 125 Harvard St., N., Vermillion, S. Dak....	1921
*OWEN, MISS JULIETTE AMELIA, 306 N. 9th St., St. Joseph, Mo....	1897
PACKARD, WINTHROP, 1442 Washington St., Canton, Mass.....	1917
PAFF, WILLIAM ALFRED, 916 Paxinosa Ave., Easton, Pa.....	1927
**PAINE, AUGUSTUS GIBSON, JR., 31 E. 69th St., New York, N. Y....	1886
PAINE, JOHN BRYANT, Weston, Mass.....	1922
PAINTER, KENYON VICKERS, 3240 Fairmont Blvd., Cleveland, Ohio	1920
*PALEN, FREDERICK POMEROY, 233 Broadway, New York, N. Y....	1926
*PALMER, MISS ELIZABETH DAY, 1741 S. Harvard Blvd., Los Angeles, Calif.....	1918
PALMER, DR. SAMUEL COPELAND, Swarthmore College, Swarthmore, Pa.....	1899
PALMER, MRS. THEODORE SHERMAN, 1939 Biltmore St., N. W., Wash- ington, D. C.....	1918
PANGBURN, CLIFFORD HAYES, Chappaqua, Westchester Co., N. Y....	1907
PARDEE, DR. LUCIUS C., 30 N. Michigan Ave., Chicago, Ill.....	1926
*PARKER, EDWARD LUDLOW, Nashawtuc Road, Concord, Mass.....	1916
PARKER, HARRY CLARENCE, Mus. Birds and Mammals, Lawrence, Kan.....	1927
PARKER, HERBERT, South Lancaster, Mass.....	1920
PATCH, DR. EDITH MARION, College Road, Orono, Maine.....	1921
PATTEN, DR. STEPHEN K., 141 Milk St., Boston, Mass.....	1920
PAUL, LUCIUS H., 424 Carter St., Rochester, N. Y.....	1908
PAUL, DR. ROBERT DORLAND, 1358 E. 47th St., Chicago, Ill.....	1927
PEABODY, REV. PUTNAM BURTON, 2011 Park Ave., Topeka, Kans....	1903
PEAKE, ARTHUR LIONEL, Nanaimo, B. C., Can.....	1927
PEARSE, SPENCER, Ravenscrag, Sask., Can.....	1926
PEARSE, THEED, P. O. Box 158, Courtenay, Vancouver Id., B. C., Can.	1926
PEASE, MISS FLORENCE MABEL, Box 265, Conway, Mass.....	1922
PELLEW, MISS MARION JAY, Box 455, Aiken, S. C.....	1919
PEMBERTON, JOHN ROY, 525 N. Palm Drive, Beverly Hills, Calif....	1918
PENNINGTON, LEIGH H., State College of Forestry, Syracuse, N. Y....	1927
PEPPER, DR. WILLIAM, Melrose Park, Philadelphia, Pa.....	1911
PERINE, KEBLE BARNUM, 5 Puritan Ave., Dorchester, Mass.....	1917
*PERKINS, DR. ANNE ELIZABETH, Gowanda State Hospital, Helmuth, N. Y.....	1917
PERKINS, DR. EDWARD HENRY, Box 52, Waterville, Maine.....	1920
PERKINS, DR. GEORGE HENRY, Univ. of Vt., Burlington, Vt.....	1912
PERKINS, SAMUEL ELLIOTT, 3rd, 701 Inland Bank Bldg., Indianapolis, Ind.....	1923
PERRY, EDGAR LEROY, State Game and Fish Warden, Santa Fe., N. Mex.....	1928
PERRY, GEORGE LEWIS, 68 Thurston St., Winter Hill, Somerville, Mass.....	1923
PERRY, JOHN ELMER, 627 West 3rd St., Erie, Pa.....	1924
PERRYGO, WATSON MONDELL, U. S. Nat. Museum, Washington, D. C.	1927

PETER, JULIUS CHRISTIAN, Detroit Trust Co., Detroit, Mich.	1921
PETERS, ALBERT S., Donnybrook, N. Dak.	1908
PETERS, HAROLD SEYMOUR, Bureau of Entomology, Dept. Agr., Wash- ington, D. C.	1924
PETERS, WILLIAM YORK, 143 Bay State Road, Boston, Mass.	1925
PETERSON, ALFRED, Box 211, Pipestone, Minn.	1920
PETRIE, DR. RAYMOND CHESEBROUGH, 5 West Main St., Johnstown, N. Y.	1925
PEYTON, LAWRENCE GORHAM, R. F. D. 2, Fillmore, Ventura Co., Calif.	1924
PHELPS, FRANK MILLS, 130 Cedar St., Elyria, Ohio.	1912
PHELPS, MRS. J. W., Box 158, Northfield, Mass.	1899
*PHILIPP, PHILIP BARNARD, 220 Broadway, New York, N. Y.	1907
PHILLIPS, PROF. ALEXANDER HAMILTON, 54 Hodge Road, Princeton, N. J.	1891
PHILLIPS, CHARLES LINCOLN, 5 West Weir St., Taunton, Mass.	1912
*PHILLIPS, JOHN MACFARLANE, 2227 Jane St., Pittsburgh, Pa.	1920
PICKENS, ANDREW LEE, 216 Zool. Bldg., Univ. of California, Berkeley, Calif.	1925
PICKWELL, GAYLE BENJAMIN, Natural Science Dept., State Teachers Coll., San Jose, Calif.	1924
PIERCE, WRIGHT MCEWEN, Box 343, Claremont, Calif.	1918
PIGGOT, JOHN WHITMAN, Bridgetown, N. S., Can.	1927
*PIKE, EUGENE ROCKWELL, 2430 Lake View Ave., Chicago, Ill.	1926
PILQUIST, GOODRICH ELMO, Dardanelle, Ark.	1927
*PINCHOT, HON. GIFFORD, 1615 R. I. Ave., Washington, D. C.	1910
PINCKNEY, MRS. ARTHUR, Summerville, S. C.	1928
PIRNIE, MILES DAVID, Dept. of Conservation, Lansing, Mich.	1919
PITMAN, CAPT. CHARLES ROBERT SENHOUSE, Game Warden, Entebbe, Uganda, East Africa.	1928
PLATH, KARL, 2847 Giddings St., Chicago, Ill.	1925
PLATT, HON. EDMUND, 2339 Ashmead Pl., N. W., Washington, D. C.	1917
POE, MISS MARGARETTA, Earl Court, St. Paul & Preston Sts., Balti- more, Md.	1899
POMEROY, FRED ELMER, Dept. Biology, Bates College, Lewiston, Maine.	1920
POOLE, EARL LINCOLN, Public Museum, Reading, Pa.	1916
POPENOE, CHARLES HOLCOMB, Bureau Entomology, Dept. Agr., Wash- ington, D. C.	1927
PORTER, EDGAR FRANCIS, R. F. D. 2, Athol, Mass.	1922
PORTER, JAMES VANN, Box 394, Glenwood, Minn.	1926
PORTER, LOUIS HOPKINS, Noroton Hill, Stamford, Conn.	1893
PORTER, WILLARD BROWN, 5 Lee St., Salem, Mass.	1922
POST, WILLIAM STONE, 101 Park Ave., New York, N. Y.	1911
POT, ADRIAAN, Slikerveer B. 77, Rotterdam, Holland.	1928
POTTER, MISS JESSICA A., 1118 Santee St., Los Angeles, Calif.	1924
POTTER, JULIAN KENT, 437 Park Ave., Collingswood, N. J.	1912

POTTER, LAURENCE BEDFORD, Gower Ranch, East End, Sask., Can.	1919
POTTER, LOUIS HENRY, R. F. D. 2, West Rutland, Vt.	1922
POTTS, FREDERICK ANDREW, Fortuna, Porto Rico.	1922
POTTS, THOMAS CHARLES, East Erie Ave. & D St., Philadelphia, Pa.	1923
POUGH, RICHARD HOOPER, 4 Lenox Place, St. Louis, Mo.	1922
PRAEGER, WILLIAM EMILIUS, Kalamazoo College, Kalamazoo, Mich.	1892
PRATT, GEORGE DUPONT, 26 Broadway, New York, N. Y.	1917
PRENTISS, REV. WILLIAM CARLOS, Plainfield, Conn.	1921
PRESCOTT, MRS. SAMUEL CATE, 249 Tappan St., Brookline, Mass.	1922
PRICE, DR. LIGON, Dunmore, W. Va.	1913
PRIEST, CAPT. CECIL DAMER, Mashumba's P. O., Inoro, Marandella, S. Rhodesia, S. Africa.	1927
PRIEST, GEORGE HEYWOOD, 33 North Ash St., Brockton, Mass.	1922
PRILL, DR. ALBERT G., Scio, Oregon.	1921
*PROCTER, MRS. LILLIAN S., 410 Park Ave., New York, N. Y.	1928
*PROCTER, WILLIAM, 30 East 42d St., New York, N. Y.	1928
PROCTOR, GEORGE NEWTON, 35 Congress St., Boston, Mass.	1919
PUMYEA, NELSON DEWITT, Mount Holly, N. J.	1928
PURDIE, MISS EVELYN, 383 Harvard St., Cambridge, Mass.	1921
PURDY, WILLIAM BROWN, Box 114, Milford, Oakland Co., Mich.	1921
QUARLES, EMMET AUGUSTUS, 139 E. 7th St., Plainfield, N. J.	1918
QUATTLEBAUM, MRS. EDITH BROCKETT, 387 Prospect St., East Orange, N. J.	1928
QUATTLEBAUM, REV. W. D., 387 Prospect St., East Orange, N. J.	1924
QUILLIN, ROY WILLIAM, 422 W. King's Highway, San Antonio, Texas.	1920
QUINCY, JOSIAH HATCH, 37 Stratford St., Boston 32, Mass.	1922
RACEY, KENNETH, 3262 First Ave., W. Vancouver, B. C., Can.	1921
RALFE, PILCHER GEORGE, Castletown, Isle of Man, England.	1928
RAMSAY, MRS. A. F., 326 Brock Ave. N., Montreal West, Que., Can.	1927
RAND, AUSTIN L., McGraw Hall, Ithaca, N. Y.	1927
RANSOM, WEBSTER HAMILTON, 708 W. 20th Ave., Spokane, Wash.	1927
RAPP, FREDERICK WILLIAM, Vicksburg, Mich.	1922
REAGH, DR. ARTHUR LINCOLN, 39 Maple St., West Roxbury, Mass.	1896
REATH, BENJAMIN BRANNAN 2d, 326 Walnut St., Philadelphia, Pa.	1928
REDICK, LEONARD LE ROY, Newington Junction, Conn.	1924
REDINGTON, PAUL GOODWIN, Falls Church, Va.	1927
REED, MRS. CARLOS ISAAC, 1615 S. 9th Ave., Maywood, Ill.	1920
REED, MRS. CHARLES K., 11 State St., Worcester, Mass.	1925
REED, MISS CLARA EVERETT, Brookfield, Mass.	1919
REED, MONTAGUE R., Apt. 8, 5980 Park Ave., Montreal, Que., Can.	1921
REESE, MRS. ROBERT MILLER, 517 Cameron St., Alexandria, Va.	1920
REGAR, GEORGE BERTRAM, 434 Vernon Road, Noble Vista, Jenkin- town, Pa.	1923
REGAR, HOWARD SEVERN, 1400 DeKalb St., Norristown, Pa.	1916
REHN, JAMES ABRAM GARFIELD, Acad. Nat. Sciences, Logan Sq., Philadelphia, Pa.	1901

- REID, MRS. BRUCE, Gulf Refinery, Port Arthur, Texas.....1928
 REID, EARL DESMOND, U. S. Nat. Museum, Washington, D. C....1927
 REID, RUSSELL, 811 12th St., Bismarck, N. Dak.....1919
 REIS, REV. JACOB ANTHONY, Jr., Kribi, Efulan, Cameroun, French
 West Africa.....1921
 RHOADS, CHARLES JAMES, 1531 Walnut St., Philadelphia, Pa.....1895
 **RHOADS, SAMUEL NICHOLSON, 81 Haddon Ave., Haddonfield, N. J.1885
 RICE, JAMES HENRY, JR., Brick House Plantation, Wiggins, S. C..1910
 RICE, WARD JENNINGS, 5250 N. Pennsylvania St., Indianapolis, Ind..1913
 RICH, MISS NELLIE VANDERVOORST, 280 Whalley Ave., New Haven,
 Conn.....1923
 RICH, WALDO LEON, Box 221, Saratoga Springs, N. Y.....1921
 RICHARDS, MISS HARRIET ELIZA, 36 Longwood Ave., Brookline, Mass.1900
 RICHARDS, MISS RUTH, Clifton, Sta., Fairfax Co., Va.....1921
 RICHARDSON, FRIDRICK WILLIAM LEOPOLD, JR., Charles River, Mass..1921
 RICHARDSON, RUSSELL, JR., Newton, Bucks Co., Pa.....1924
 RICHARDSON, WILLIAM DERRICK, 4215 Prairie Ave., Chicago, Ill...1917
 *RICHARDSON, MRS. WILLIAM DERRICK, 4215 Prairie Ave., Chicago,
 Ill.....1925
 RICHARDSON, DR. WYMAN, 229 Dudley Road, Newton Centre, Mass.1920
 RIDGWAY, JOHN LIVZEY, 501 Fairmount St., Glendale, Calif.....1890
 RIDDLE, SAMUEL EARL, 1496 Boulevard, N. E., Atlanta, Ga.....1928
 **RIKER, CLARENCE BAYLEY, 432 Scotland Road, South Orange, N. J.1885
 RIPLEY, WOLCOTT, Oyster Bay, L. I., N. Y.....1928
 RISHEL, JOHN BENJAMIN, 1390 South Josephine St., Denver, Colo...1922
 ROBB, WALLACE HAVELOCK, Abbey Dawn, Rt. 1, Kingston, Ont., Can.1921
 ROBBINS, REGINALD CHAUNCEY, Northeast Harbor, Maine.....1921
 ROBBINS, MRS. REGINALD CHAUNCEY, Northeast Harbor, Maine...1921
 ROBERTS, DR. FRANCIS L. R., Spirit Lake, Iowa.....1928
 ROBERTS, HOWARD RADCLYFFE, Villa Nova, Pa.....1924
 ROBERTS, WILLIAM ELY, 207 McKinley Ave., Lansdowne, Pa.....1902
 ROBERTSON, HOWARD, 157 S. Wilton Drive, Los Angeles, Calif.....1911
 ROBERTSON, JOHN MCBRAIR, Box 121, Buena Park, Orange Co., Calif.1920
 ROBIE, WILLIAM P. F., Gorham, Maine.....1926
 ROBINSON, ANTHONY WAYNE, 780 College Ave., Haverford, Pa...1903
 ROBINSON, HERBERT WILLIAM, 37 West Road, Lancaster, England..1928
 ROBINSON, MRS. L. K., 1130 S. Franklin St., Denver, Colo.....1919
 ROBINSON, MISS RACHEL GORGAS, 7810 College Ave., Haverford, Pa.1928
 RODDA, MRS. J. LANDON, 242 Princeton Ave., Palmerton, Pa.....1925
 ROGERS, MRS. A. L., 1413 Myrtle St., Scranton, Pa.....1926
 ROGERS, MISS MABEL FLORENCE, 11 Fourth Ave., Ottawa, Ont., Can.1921
 ROGERS, REV. WALLACE, 173 Hurt St., Atlanta, Ga.....1921
 ROLLINS, HARRY LEIGHTON, 646 Washington St., Wellesley, Mass..1924
 ROOSEVELT, HON. FRANKLIN DELANO, Albany, N. Y.....1896
 RORIMER, MRS. JOHN MORRIS, 1725 East 115th St., Cleveland, O....1927
 ROSE, FRANK HUBERT, Montana Nat. Bison Range, Moiese, Mont..1927

ROSE, GEORGE CHILDS, 222 Front St., Mineola, N. Y.....	1920
ROSEN, WALTER MELVIN, P. O. Box 22, Ogden, Iowa.....	1928
ROSIER, EUGENE, Petit Saconnex, Geneva, Switzerland.....	1927
ROSS, MISS EDNA GRACE, Route 3, Pakenham, Ont., Can.....	1927
ROSS, GEORGE HERBERT, 23 West St., Rutland, Vt.....	1904
ROSS, LAURENCE STRAUB, 510 E. Second St., Moorestown, N. J.....	1925
ROSS, DR. LUCRETIVS HENRY, 507 Main St., Bennington, Vt.....	1912
ROSS, MARJORIE RUTH, Penn. State College, Dept. of Nature Study, State College, Pa.....	1928
ROSS, REUBEN JAMES, 60 Broadway, New York, N. Y.....	1922
ROSS, ROLAND CASE, 1820 Bushnell Ave., South Pasadena, Calif.....	1925
ROSSIGNOL, GILBERT RICE, 3698 S. W. 8th St., Miami, Fla.....	1928
ROTH, EDGAR AUGUST, 4635 Lilbourne Ave., West View, Pittsburgh, Pa.....	1925
ROTHROCK, BOYD PACKER, 276 Briggs St., Harrisburg, Pa.....	1925
ROYALL, JORDAN BROOKS, Tallahassee, Fla.....	1928
RUBY, GEORGE DALLAS, 520 Clarendon St., Syracuse, N. Y.....	1928
RUGG, HAROLD GODDARD, Dartmouth College, Hanover, N. H.....	1919
*RUMSEY, MRS. MARY HARRIMAN, Wheatley Hills, Westbury, L. I., N. Y.....	1925
RUPPERT, FRANK CULVER, 636 H. St., N. E., Washington, D. C.....	1927
RUSSELL, JOHN WILLIAM, 26 Osgood Ave., Manton, R. I.....	1922
RUST, HENRY JUDSON, Coeur d'Alene, Idaho.....	1918
RUTTER, RUSSELL JAMES, 48 Burgess Ave., Toronto 13, Ont., Can.....	1928
SAGE, DEWITT LINN, 580 Park Ave., New York, N. Y.....	1925
**SAGE, HENRY MANNING, Menands Road, Albany, N. Y.....	1885
SAGE, MRS. MARY SEARL, 1974 Broadway, New York, N. Y.....	1919
SALOMONSEN, FINN, Slotsholmsgade 16, Copenhagen, Denmark.....	1927
SAMPSON, WALTER BEHRNARD, 1005 N. San Joaquin St., Stockton, Calif.....	1922
SANBORN, COLIN CAMPBELL, Field Museum, Chicago, Ill.....	1911
*SANFORD, DR. LEONARD CUTLER, 216 Crown St., New Haven, Conn.....	1919
SANSOM, NORMAN BETHUNE, 110 Muskrat St., Banff, Alta., Can.....	1928
SANTENS, REMI HENRI, Carnegie Museum, Pittsburgh, Pa.....	1918
SASS, HERBERT RAVENEL, 23 Legare St., Charleston, S. C.....	1923
SATTERTHWAIT, MRS. ALFRED FELLEBERG, 118 Waverly Place, Web- ster Groves, Mo.....	1920
SAUNDERS, FREDERICK ALBERT, 10 Chauncy St., Cambridge 38, Mass.....	1923
SAUNDERS, GEORGE, 305 East Tenth St., Oklahoma City, Okla.....	1925
SAVAGE, HENRY LYTTLETON, 622 E. Gravess Lane, Chestnut Hill, Philadelphia, Pa.....	1926
SAVAGE, JAMES, 1048 Ellicott Sq., Buffalo, N. Y.....	1895
SAVAGE, SORRELLO O'CONNOR, Parkdale, Ashley Co., Ark.....	1922
SAVARY, WALTER BURGESS, Wareham, Mass.....	1922
SAVIN, WILLIAM MORGAN, 52 Broadway, New York, N. Y.....	1921
SAWYER, EDMUND JOSEPH, Buffalo Mus. of Science, Buffalo, N. Y.....	1922

SAYLES, MISS DEBORAH WILCOX, 263 Hammond St., Chestnut Hill, Mass.	1928
SCHAEFER, OSCAR FREDERICK, 724 Woodbine St., Rochester, N. Y.	1916
SCHAFER, JOHN JACOB, R. R. 2, Port Byron, Ill.	1918
SCHANTZ, ORPHEUS MOYER, 3219 Maple Ave., Berwyn Ill.	1919
SCHEAR, PROF. EDWARD WALDO EMERSON, 107 W. Park St., Westerville, Ohio.	1922
SCHELL, JOHN WILLIS, 129 W. Sharpneck St., Mt. Airy, Philadelphia, Pa.	1923
SCHIERMANN, GOTTFRIED, Bergmannstrasse 104, Berlin S. W. 29, Germany.	1928
SCHMIDT, EUGENE WILLIAM, 494 Church St., New Britain, Conn.	1927
SCHNEIDER, MRS. GEORGE HENRY, 4618 Kingswell Ave., Los Angeles, Calif.	1921
SCHOEDINGER, GEORGE RICHARD, JR., 78 Auburn Ave., Columbus, Ohio.	1926
SCHONNEGEL, JULIAN ELIOT, 92 Morningside Ave. E., New York, N. Y.	1918
SCHORGER, ARLIE WILLIAM, 2021 Kendall Ave., Madison, Wis.	1913
SCHRENCK, DR. HERMANN VON, Tower Grove and Flad Aves., St. Louis, Mo.	1919
SCHROEDER, MRS. ADELE PARROTT, White River, S. Dak.	1920
SCHWARZ, HERBERT FERLANDO, Am. Mus. Nat. Hist., New York, N. Y.	1925
SCHWARZ, HERMANN, 720 Clark Ave., Webster Groves, Mo.	1928
SCHWARZ, MAX DIEDRICH, 625 Tuxedo Blvd., Webster Groves, Mo.	1928
SCOATES, MRS. DAN, P. O. Box H, College Station, Texas.	1927
SCOFIELD, JOHN KENDRICK, 1511 30th St., N. W., Washington, D. C.	1927
SCOTT, CHARLES HENRY, JR., Provident Trust Bldg., 17th & Chestnut Sts., Philadelphia, Pa.	1926
SCOVILLE, GURDON TRUMBULL, Dunbar Hall, Exeter, N. H.	1925
SCOVILLE, SAMUEL, JR., 1307 Penn Bldg., Philadelphia, Pa.	1916
SEARS, MISS ANNIE LYMAN, 85 Mt. Vernon St., Boston, Mass.	1924
SEARS, MRS. GEORGE GRAY, 426 Beacon St., Boston, Mass.	1922
SEELEY, GEORGE HENRY, Box 106, Stockbridge, Mass.	1920
SEPTON, JOSEPH WELLER, JR., Maryland Bldg., San Diego, Calif.	1922
SEIPLE, STANLEY JULIUS, 293 Clinton St., Greenville, Pa.	1927
*SEMPLE, JOHN BONNER, Sewickley, Pa.	1924
*SERPELL, GOLDSBOROUGH, Seaboard Nat. Bank, Norfolk, Va.	1926
SERRILL, WILLIAM JONES, 1401 Arch St., Philadelphia, Pa.	1916
SHADLE, ALBERT ROY, 143 University Ave., Buffalo, N. Y.	1928
SHAVER, PROF. JESSE M., Peabody College, Nashville, Tenn.	1924
*SHAW, HENRY S., 136 High St., Exeter, N. H.	1916
SHAW, TSEN HWANG, Dept. Biol., Tsing Hua College, Peking, China.	1922
SHAW, DR. WILLIAM THOMAS, 1002 Cambridge Ave., Fresno, Calif.	1908
SHEA, PROF. DANIEL WILLIAM, Catholic Univ., Washington, D. C.	1917
SHEARER, DR. AMON R., Mont Belvieu, Chambers Co., Texas.	1905

SHEFFLER, WILLIAM JAMES, 4731 Angeles Vista Blvd., Los Angeles, Calif.....	1928
SHELDON, HENRY ERNEST, 21 Norwood Ave., Norwalk, Ohio.....	1926
SHELLEY, LEWIS ORMAN, P. O. Box 9, East Westmoreland, N. H.....	1925
SHEPPARD, ROY WATSON, 310 Bampffield St., Niagara Falls, Ont., Can.....	1928
SHERRILL, WILLIAM ENOS, Haskell, Tex.....	1922
SHERWOOD, ROBERT C., 38 Vassar St., Springfield, Mass.....	1921
SHIPMAN, CHARLES MELVILLE, 114 Ridge Road, Willoughby, Ohio.....	1925
SHIRLEY, GARLAND LATIMER, Dayton, Va.....	1927
SHOEMAKER, CLARENCE RAYMOND, 3116 P St., Washington, D. C.....	1910
SHOEMAKER, HENRY WHARTON, Room 409, 71 Broadway, New York, N. Y.....	1912
SHOFFNER, CHARLES PENNYPACKER, The Hawthorne, Apt. 1, 5053 Walnut St., Philadelphia, Pa.....	1915
SHORE, ROBERT, Box 440, Indian Head, Sask., Can.....	1927
SILLEM, DR. JOHN GOTTLIEB, Legation des Pays Bas, Helvetiastrasse 50, Bern, Switzerland.....	1928
SILLIMAN, OSCAR PERRY, c/o Mitchell-Silliman Co., Salinas, Calif.....	1915
SIMONS, EDWARD ALEXANDER, 4 Lamboll St., Charleston, S. C.....	1928
SIMPSON, RALPH BERNARD, 128 Biddle St., Warren, Pa.....	1928
SKEELE, HENRY BLODGET, 116 W. Gaston St., Savannah, Ga.....	1926
SKINNER, MILTON PHILO, 44 Broadhead Ave., Jamestown, N. Y.....	1916
SLADEN, MAJOR ALEXANDER GEORGE LAMBERT, Kingswood House, The Lee, Gt. Missenden, Bucks, England.....	1927
SLAWSON, DR. EDWARD DOUGLASS, 708 N. Sheridan St., Bay City, Mich.....	1921
SLOANAKER, PROF. JOSEPH LYDAY, 1117 W. Maxwell Ave., Spokane, Wash.....	1923
SLOCUM, HARRY SPENCER, 4 Whitethorn Lane, Bluefield, W. Va.....	1928
SLYFIELD, ARTHUR, 212 Court St., Oshawa, Ont., Can.....	1928
SMALL, COL. WILLIAM MELVILLE, Headquarters U. S. Marine Corps, Washington, D. C.....	1924
SMILEY, ALBERT KEITH, JR., Mohonk Lake, Ulster Co., N. Y.....	1928
SMILEY, DANIEL, JR., Mohonk Lake, Ulster Co., N. Y.....	1928
SMITH, AUSTIN PAUL, Apt. 412, San Jose, Costa Rica.....	1911
SMITH, EARL R., P. O. Box 641, New Orleans, La.....	1924
SMITH, MRS. FLORENCE, Box 145, Cincinnati, N. Y.....	1920
SMITH, PROF. FRANK, 79 Fayette St., Hillsdale, Mich.....	1909
SMITH, FRANK R., Fredericktown, Pa.....	1926
SMITH, HERBERT ALLYN, 2941 E. 29th St., Kansas City, Mo.....	1928
SMITH, MRS. HERBERT WATSON, Islip, L. I., N. Y.....	1925
**SMITH, HORACE GARDNER, 2918 Lafayette St., Denver, Colo.....	1888
SMITH, HOWARD CLIFFORD, Rt. 1, Stafford Springs, Conn.....	1923
**SMITH, DR. HUGH MCCORMICK, 1209 M St., N. W., Washington, D. C.....	1886
SMITH, JESSE LOW, 334 Vine Ave., Highland Park, Ill.....	1920

SMITH LESTER MACCUE, 218 W. Chelton Ave., Germantown, Philadelphia, Pa.	1927
SMITH, LESTER WHEADON, Park Manor, Babson Park, Mass.	1916
SMITH, LUTHER ELY, 1554 Telephone Bldg., St. Louis, Mo.	1928
SMITH, NAPIER, Bank of Montreal, Verdun, Que., Can.	1915
SMITH, REV. O(NNIE) WARREN, 120 Church St., Oconomowoc, Wis.	1924
SMITH, ROY HARMON, 183 N. Prospect St., Kent, Ohio.	1922
SMITH MRS. WALLIS CRAIG, 525 N. Mich. Ave., Saginaw, W. S., Mich.	1916
SMITH, WENDELL PHILLIPS, Wells River, Vt.	1919
SMOOKER, GEORGE DOUGLAS, Mt. Hope, St. Joseph, Trinidad, B. W. I.	1926
SMYTH, ELLISON ADGER, JR., Rt. 2, Box 166, Salem, Va.	1892
SMYTH, DR. THOMAS, State Teachers College, Indiana, Pa.	1921
SNOW, MISS GRACE MARION, 39 Forest St., Winchester, Mass.	1922
SNYDER, MISS DOROTHY EASTMAN, 133 Columbus St., Elyria, Ohio.	1923
SNYDER, LESTER LYNNE, Royal Ont. Mus., Toronto, Ont., Can.	1919
SNYDER, WILL EDWIN, 309 DeClark St., Beaver Dam, Wis.	1895
SOPER, JOSEPH DEWEY, N. W. Terr. & Yukon Br. Dept. Interior, Ottawa, Ont., Can.	1923
SOUTHARD, ROBERT HAMILTON, 486 Clifton Ave., Newark, N. J.	1927
SPAULDING, MISS NINA GERTRUDE, Jaffrey, N. H.	1922
SPEAR, JAMES JR., Wallingford, Pa.	1926
SPELMAN, HENRY MUNSON, 48 Brewster St., Cambridge, Mass.	1911
SPENCER, THOMAS, Brothersfield Estate, Tobago, B. W. I.	1928
SPERRY, CHARLES CALVERT, Biological Survey, Washington, D. C.	1920
*SPINGARN, EDWARD DAVID WOODBERRY, Amenia, N. Y.	1924
SPOFFORD, WALTER RICHARDSON, 2d, Highland Road, Berlin, Mass.	1927
SPRAGUE, ISAAC, Wellesley Hills, Mass.	1920
SPROT, GEORGE DOVETON, R. M. D. Cobble Hill, Vancouver Island, B. C., Can.	1923
SPRUANCE, WILLIAM CORBIT, 2507 W. 17th St., Wilmington, Del.	1923
SQUIRES, KARL, P. O. Box 1264, Miami, Fla.	1927
STACY, EUGENE C., Tiffin, Ohio.	1924
STANAKA, WILLIAM F., 1218 Crown Ave., Scranton, Pa.	1927
*STANLEY, DR. ARTHUR CAMP, The Farragut, Washington, D. C.	1925
STANWOOD, MISS CORDELIA JOHNSON, Ellsworth, Maine.	1909
STEBBINS, FANNIE ADELL, Mittineague, Mass.	1922
STEIN, GEORG, Post Pulverkrug, Kr. Westernberg, Reipzig, Germany.	1928
STEPHENSON, MRS. JESSE, Monte Vista, Colo.	1918
STETSON, SERENO, 511 W. 113th St., New York, N. Y.	1923
STEVENSON, JAMES OSBORNE, 6013 Winthrop Ave., Chicago, Ill.	1926
STEWART, JAMES BURCHARD, Roselle, N. J.	1921
STEWART, PAUL ALVA, R. D. 1, Leetonia, Ohio.	1928
STICKNEY, GARDNER PERRY, 864 Summit Ave., Milwaukee, Wis.	1923
STILES, EDGAR CRANE, 345 Main St., West Haven, Conn.	1907
STIRTON, REUBEN ARTHUR, Dept. Palaeontology, Bacon Hall, Univ. of Calif., Berkeley, Calif.	1923

STODDER, CLEMENT K., 21 Penniman Road, Brookline, Mass.....	1926
STONE, MRS. FRANCIS H., S. Dartmouth, Mass.....	1920
STONE, HARRY HEBERT, JR., Sturbridge, Mass.....	1919
STONE, ROBERT GREGG, 575 Boylston St., Brookline, Mass.....	1922
STONE, MRS. WITMER, 452 Church Lane, Germantown, Phila, Pa..	1920
STONEHAM, CAPT. HUGH FREDERIC, "Parknasilla," East Surrey Es- tates, Trans-Nzoia, Kenya Colony, Brit. East Africa.....	1928
STONER, DR. DAYTON, U. S. Entomological Lab., Sanford, Florida..	1922
STONER, EMERSON AUSTIN, Box 444, Benicia, Calif.....	1922
STORROW, MRS. EDWARD C., South St., Needham, Mass.....	1925
STRABALA, LONY BALTHASAR, Box 129, Leetonia, Ohio.....	1925
STRATTON, MRS. GEORGE W., 518 Franklin Ave., Wilkinsburg, Pa..	1920
STRECKER, JOHN KERN, Baylor University, Waco, Texas.....	1925
STRONG, WILLIAM ABNER, Warm Springs, Calif.....	1924
STUART, EDWARD TOBEY, JR., 2133 St. James Place, Philadelphia, Pa..	1925
STUBBS, ARTHUR PERCIVAL, 1 Addison Ave., Lynn, Mass.....	1922
STURGE, MRS. EDGAR, 1620 Washington Ave., Scranton, Pa.....	1927
STURGIS, MRS. SAMUEL DAVIS, 2400 16th St., Washington, D. C..	1925
STURTEVANT, EDWARD, St. George's School, Newport, R. I.....	1896
SUGDEN, ARTHUR WALES, 35 Concord St., West Hartford, Conn....	1913
SUGDEN, DR. JOHN WILLIAM, 527 Judge Bldg., Salt Lake City, Utah..	1927
SULLIVAN, DR. ARTHUR GEORGE, 930 East Gorham St., Madison, Wis.	1926
SULLIVAN, WALTER FRANCIS, c/o U. S. Forest Service, Truckee, Calif..	1924
SUMNER, EUSTACE LOWELL, JR., 1343 S. Palomares St., Pomona, Calif.	1926
SUMNER, FRANCIS HOLLY, 5218 17th Ave., N. E., Seattle, Wash....	1928
SUTHARD, JAMES, 1403 E. 57th St., Chicago, Ill.....	1923
SVIHLA, ARTHUR, Mus. of Zool., Univ. of Michigan, Ann Arbor, Mich.	1925
SWAIN, MRS. JAMES R., Greeley, Nebr.....	1927
SWAIN, JOHN MERTON, 15 Pleasant St., Farmington, Maine.....	1899
SWALES, MRS. BRADSHAW HALL, 2921 Albemarle St., Washington, D. C.	1928
SWANSON, GUSTAV ADOLPH, 3305 47th Ave. S., Minneapolis, Minn....	1928
SWEDENBORG, ERNIE DAVID, 4905 S. Vincent Ave., Minneapolis, Minn.	1927
SWOPE, DR. EUGENE, Roosevelt Bird Sanctuary, Oyster Bay, N. Y..	1921
TABER, WILLIAM BREWSTER, JR., Greenwood Farm, Kansas, Ill....	1924
TALBOT, LESTER RAYMOND, 28 Perkins St., Melrose Highlands, Mass.	1920
TATNALL, SAMUEL ALSOP, 503 Hansberry St., Philadelphia, Pa....	1916
TAVERNER, MISS IDA CLARE, 45 Leonard Ave., Ottawa, Ont., Can..	1926
TAVISTOCK, MARQUIS OF, Warblington House, Havant, Hants, England.....	1928
TAYLOR, ALEXANDER, R., Cayce, S. C.....	1907
TAYLOR, HORACE, 5 Brattle Sq., Cambridge, Mass.....	1917
TAYLOR, HUGH LYMAN, Children's Museum, Newport, R. I.....	1927
TAYLOR, LAURENCE H., 135 Main St., Williamstown, Mass.....	1928
TAYLOR, LEWIS WALTER, Poultry Division, College of Agriculture, Berkeley, Calif.....	1925
TAYLOR, LIONEL EDWARD, R. R. 1, Saanichton, B. C., Can.....	1913

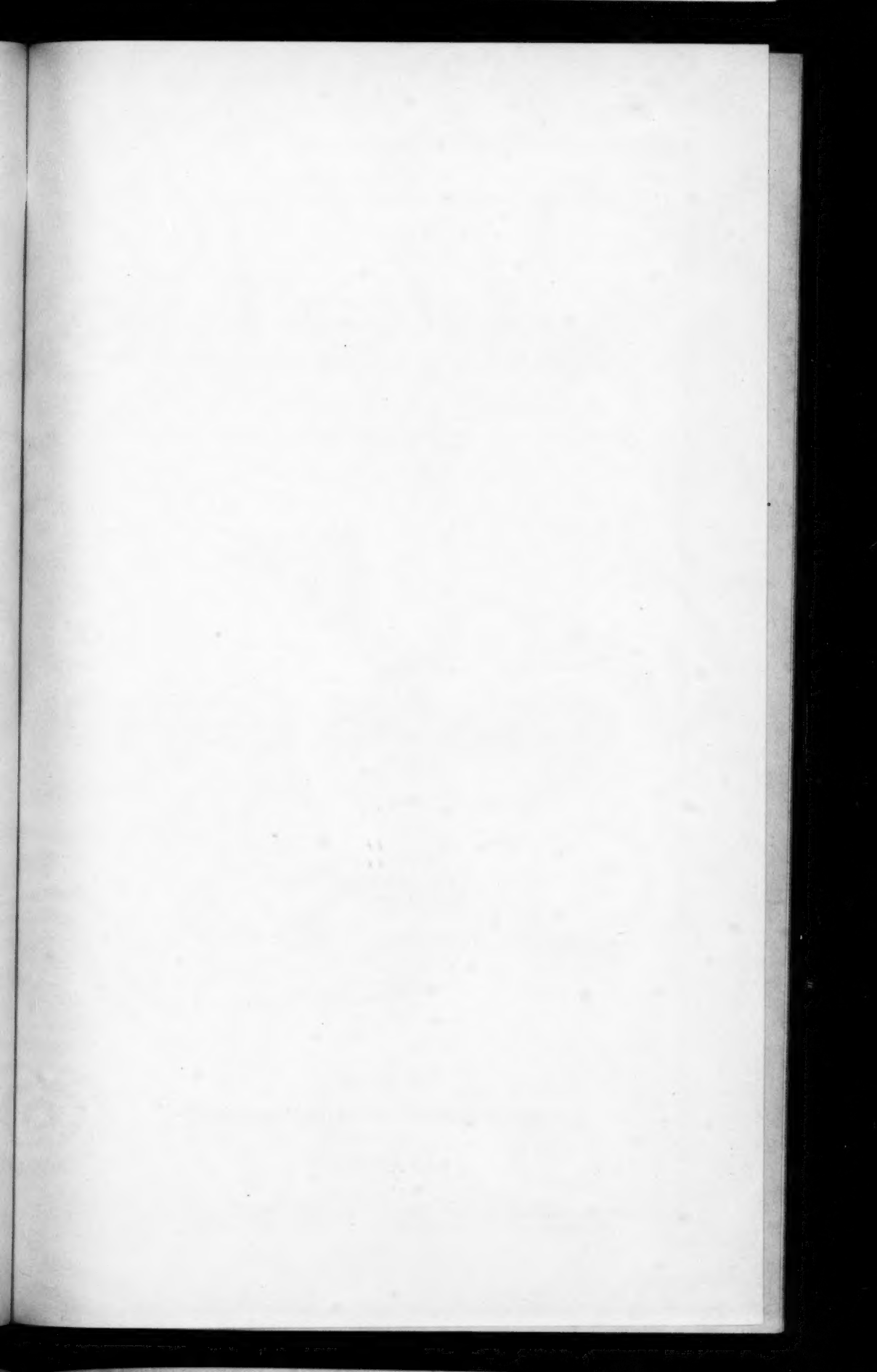
TAYLOR, DR. WALTER PENN, 1746 E. 5th St., Tucson, Ariz.....	1916
TAYLOR, WARNER, 619 N. Frances St., Madison, Wis.....	1916
TEACHENOR, DIX, 1020 W. 61st St., Kansas City, Mo.....	1919
TEE-VAN, JOHN, N. Y. Zool. Park, New York, N. Y.....	1921
TERRILL, LEWIS McIVER, 24 Prince Arthur St., St. Lambert, Que., Can.....	1907
TERRY, DR. ROBERT JAMES, 224 North Newstead Ave., St. Louis, Mo.....	1919
THABES, MRS. J. A., SR., 417 Holly St., Brainerd, Minn.....	1920
THACKER, THOMAS LINDSAY, Hope, B. C., Can.....	1928
THOMAS, EDWARD SINCLAIR, 1116 Madison Ave., Columbus, Ohio.....	1922
THOMAS, R. M., 298 Garry St., Winnipeg, Man., Can.....	1922
THOMPSON, JOHN WALCOTT, 527 East First South St., Salt Lake City, Utah.....	1916
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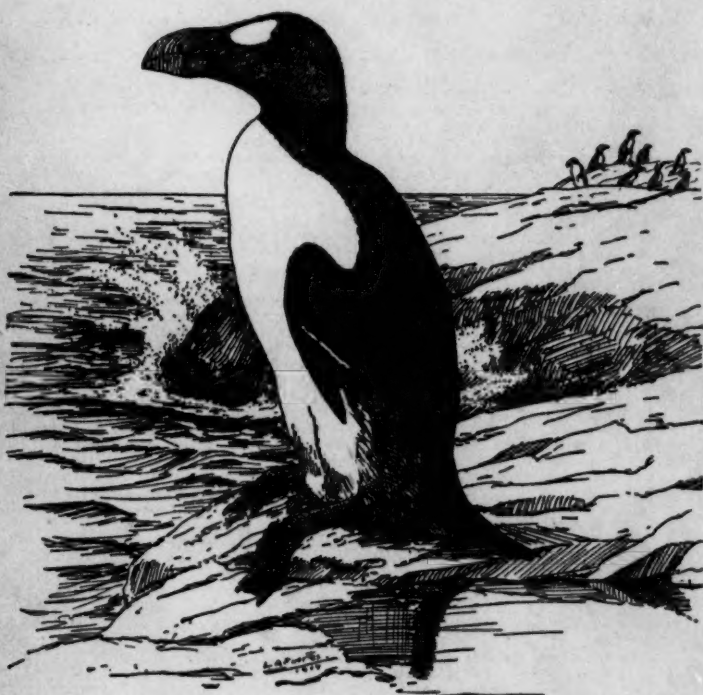
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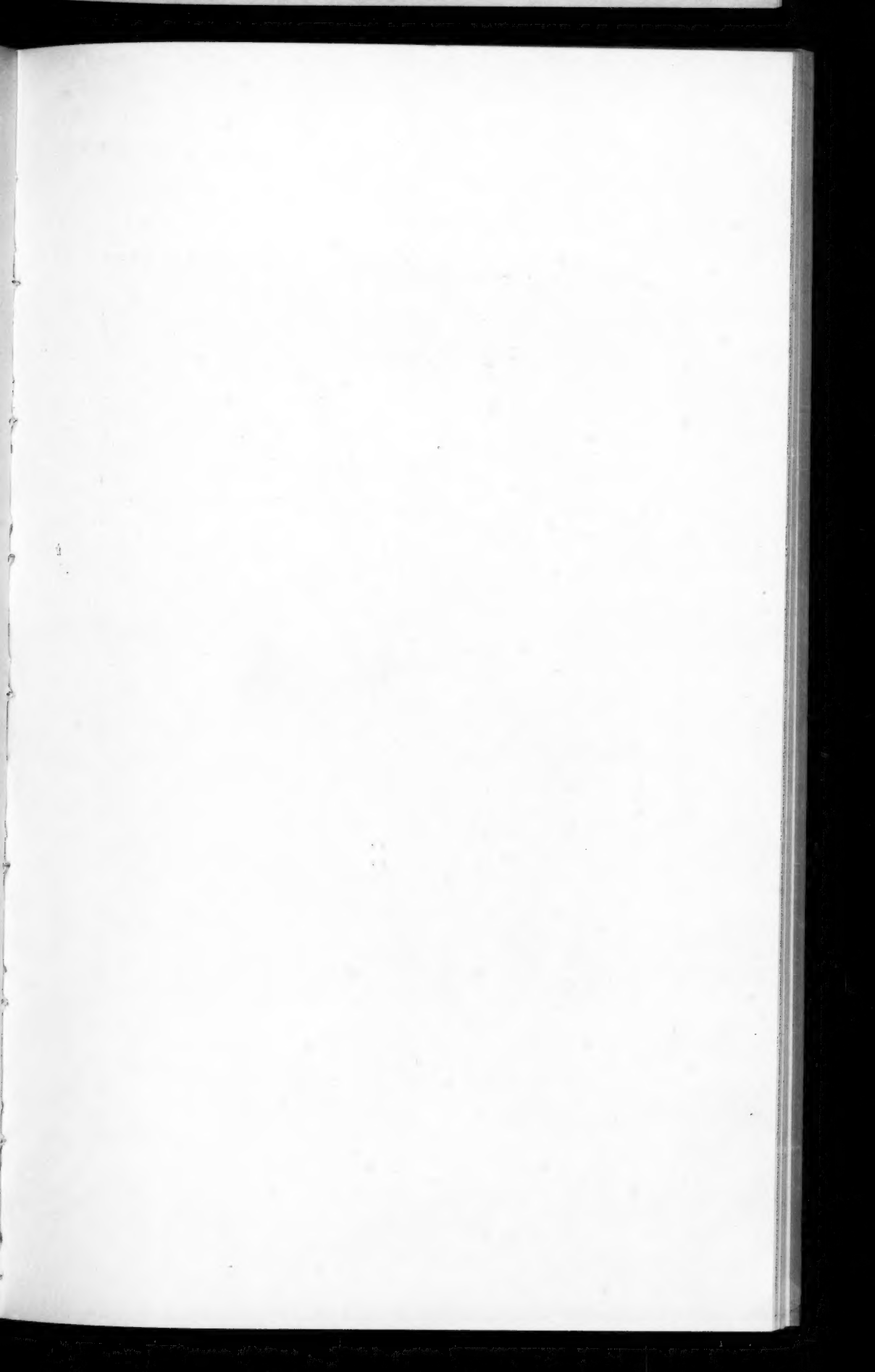
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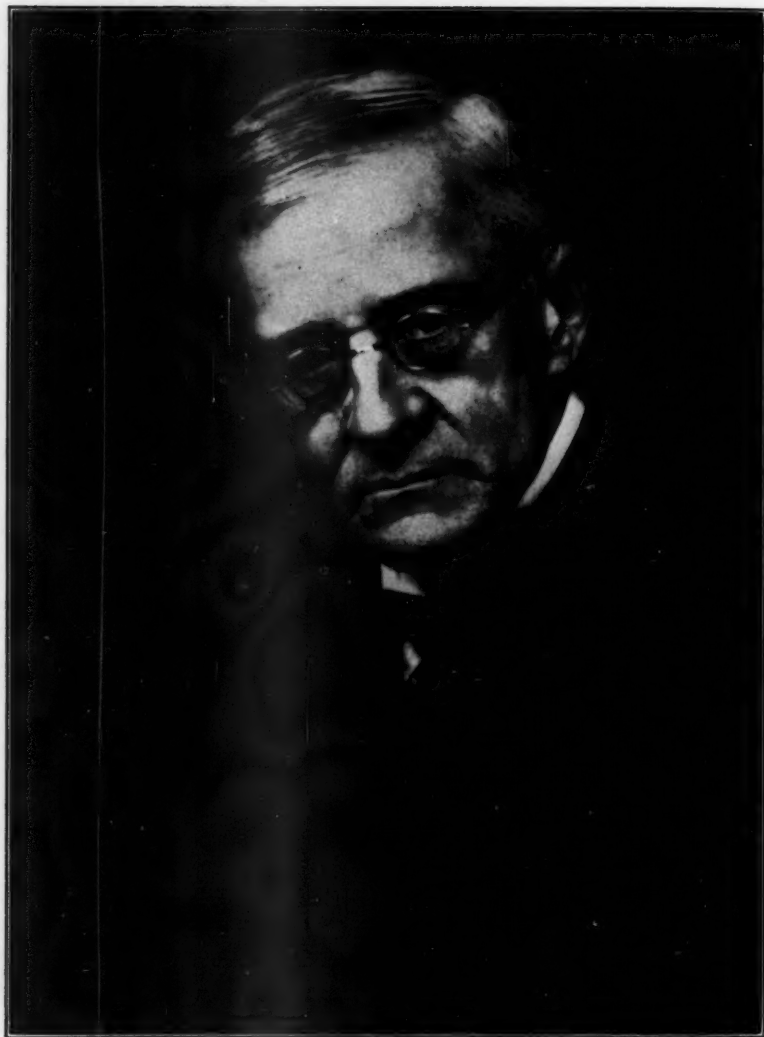
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Leverett Mills Loomis.



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IN MEMORIAM: LEVERETT MILLS LOOMIS.

BY LOUIS B. BISHOP.¹

(*Plates I-II*).

YOUTH is the season when the human mind, contented no longer with being and acting, begins to think, wonders whence and whither, how and why. To some the outer world with its wondrous charm and mystery seems most worth while, and these young dreamers become men of affairs, artists or scientists, with in the last the pursuit of truth as the highest goal. In others introspection gains the mastery, and we find poets, pedagogues and reformers, the last with an intense desire for righteousness, as they see it, flooding their souls. In most the "fine frenzy" of these awakening years subsides into the dullness of middle age with only an occasional glance backward to the enthusiasm for birds or poetry that made the earlier years a vision. Even in the favored few in whom the impulse toward some pursuit is so strong as to brook no negation the mind and life develop in but one direction, and they become deaf to the calls of the others. Like the gardener they destroy the lateral buds that the central may be more perfect. With a few, however, opposing factors in the mind are so strong that no one of them can win complete mastery, and, with the intellect sufficient, such men become leaders in more fields than one. Such was the man, whose useful life I shall, in this very im-

¹ Read before the Forty-sixth Stated Meeting of the American Ornithologists' Union, Charleston, S. C., November 20, 1928.

perfect sketch try to depict:—Leverett Mills Loomis, scientist, teacher, administrator, genial companion and reformer;—a lover of beauty, a careful and conscientious scientist, a builder and a staunch friend, but with the reformer's unswerving devotion to what he believed right he touched life at many angles.

He was born at Roseville, Ohio, October 13, 1857, the son of the Reverend Samuel and Maria Rebecca (Hamilton) Loomis. On his father's side he came of New England ancestry, his forefathers being among the earliest settlers in Mayflower days. Professor Elias Loomis, the eminent astronomer and mathematician of Yale, was a close connection, an uncle, I believe. It might be expected that it was from this ancestry he derived the unswerving devotion to what he held right and an inability to compromise that marked his later life, as well as his scientific bent; but his mother, though of cavalier descent, held such pronounced views on the observance of Sunday that, in deference to her wishes, he never collected on that day, and was unwilling that those who worked for the California Academy during his directorship should put it to common usage. It was his mother, too, who fostered his early interest in birds.

His father also was born in Ohio and was a graduate of the Western Reserve College and Union Theological Seminary. He became a minister of the Presbyterian Church, and filled the pulpits of several Ohio and New Jersey churches. In the fall of 1868, in response to an appeal from the Freedman's Board of the New School Presbyterian Church, he volunteered to go to South Carolina to take up school work among the negroes. At Chester, South Carolina, he founded a school for them, which was most successful. This school, now known as Brainerd Institute, has become one of the leading colored schools of that state. And he won the friendship and esteem of the white people of the community also, as is shown by what was published at his death. What this shows of the loveliness of his character, his reasonableness, devotion to duty and patience all those who remember, or have read, how repulsive such work then was to the white people of the South, will understand. The last years of his life were spent with his son in San Francisco, a cripple from rheumatism, and unable to read for long. With unswerving devotion

Leverett cared for him, giving to him most of the hours that were left after his work in the Academy.

In such an atmosphere then of education and refinement Leverett grew to manhood. Though he attended a military school in New Jersey for some years, most of the instruction he received was private. But for surely a time the white adults and boys of his own age at Chester must have been distinctly unfriendly; and no doubt he learned then to keep largely to himself, fight manfully his own battles, and to find in nature his chief joys.

How early his attention became concentrated on ornithology we do not know, but it must have been by 1876, for in a paper he published in 1891 he speaks of his fourteen years' field experience with the birds of South Carolina. His first published paper—"A Partial List of the Birds of Chester County, South Carolina"—appeared in the 'Bulletin of the Nuttall Ornithological Club' in 1879, and showed much knowledge not only of the birds of his home region but of the entire state, and a wide acquaintance with ornithological literature. From then until 1891 a constant succession of papers from his pen appeared in the 'Bulletin' and 'The Auk,' and in these papers he added thirteen species or subspecies to those known from South Carolina. But this aspect of the study of ornithology, though of interest to him all his life, did not long content his active mind, ideas rather than things were to be the pursuit of his later years. Migration was his first study, and to it he devoted much time in the field, collecting thousands of birds, and read all he could find on the subject. The enlargement of the gonads at the beginning of spring, which has been thought the underlying factor by some recent students, he investigated and dismissed as altogether unsatisfactory. And when we remember that this growth in the male genitalia is most pronounced, 'relatively to the size of the bird,' in some purely resident species, such as Chickadees, those who believe it the true cause of the northward movement have something to explain. His conclusions and the reasons for them he read at the ninth congress of the American Ornithologists' Union in New York in 1891, and they were published in 'The Auk' in his paper entitled "A Further Review of the Avian Fauna of Chester County, South Carolina." His belief was:

(1) That migration begins with the southward movement, commencing south and north before August and progressing gradually, the two movements each extending over a period of six months.

(2) That the young do not precede their parents in the southward movement.

(3) That all southward movement of birds is enforced departure from the region of their birth (enforced evacuation of territory capable in winter of supporting but a portion of its summer life), and that all northward movement is return from exile at the earliest opportunity, necessitated by pressure from the south (by the need of dispersal and occupancy of all available food areas), and, perhaps, in some species at least, by requirements as to climate during the breeding season.

(4) That the earlier southward movements are anticipatory, and necessarily so, and the later directly resultant of the conditions of winter.

(5) That irregular occurrence of birds in winter is ascribed (a) to variability in the location of isolated communities, independent of failure of food or severity or mildness of season; (b) to sudden cold contracting the food area and forcing birds southward (cold being the remote cause and failure of food the immediate cause), and to unusual protracted warmth enlarging the food area and encouraging birds northward; (c) to failure of food independent of severe cold.

(6) That extended protraction of migration southward and the passage further south of regular winter and resident species, that are uninfluenced by sudden ice and snow, are due to adjustment in distribution that prevents over-crowding, and not to climatic reasons.

(7) That fixity in destination in the majority of birds is as essential as migration itself, for without it there could be no uniformity of dispersion.

(8) That time, experience, and a high order of intelligence have brought about the adjustment necessitated by physical conditions.

Loomis was elected an Associate of the American Ornithologists' Union in 1883, and attended his first congress in New York in the fall of 1889, making a very favorable impression on all present by his enthusiasm, ability and knowledge, and was made a Fellow in 1892. For about a year he held a position on a newspaper owned by his uncle in New Jersey, and in 1891 was a regular attendant at the meetings of the Linnaean Society of New York. Two papers he read there were published later. But the call of the open was too strong, and he soon returned to South Carolina to begin the life of a cotton planter and to teach in his father's school. Though successful in both such contrasting employments, his interest in birds grew steadily greater. About this time the

early signs of tuberculosis manifested themselves, and the outdoor life he loved became a necessity. Possibly his failing health may have been one of the causes that induced him to sever his connection with the school and consider seriously making ornithology his profession.

South Carolina gave him the outdoor life he wished, but his persevering work had about exhausted the avian possibilities of his neighborhood, and evidently the desire for new fields was too strong to resist, for in 1893 we find him a student at the Hopkins Seaside Laboratory of Stanford University at Pacific Grove, California, and collecting actively for the Stanford Museum. There he formed the acquaintance of Mr. Edward Berwick, who allowed him to collect freely on his ranch in the Carmel valley, and who has written me of his indefatigable industry there, and also later, when he was studying the birds of the Pacific off Monterey, how he would spend all day in a small boat on the open ocean in all sorts of weather, no exertion being too much for him or danger too great if thereby some new ornithological fact might be gleaned. This friendship remained unbroken until his death.

His work in taxidermy, developed when the birdskins of many were by no means things of beauty, shows the aesthetic instinct was strong in him as well as the scientific, and he was thus one of the leaders in the era of beautiful birdskins, which has spread across the continent and is invading Europe. There can be no doubt that it was from the experiences of this trip that his absorption in water-birds began, which was later to center in the Tubinares. Monterey and its vicinity is probably the best place on all the seacoast of North America to study these birds, and as he sat in his small boat and watched their thousands wheel past, noted the many species, and realized how comparatively little was known about them in comparison with land-birds, his active mind sensed no doubt untold problems, and longed to begin solving them.

He then returned to South Carolina to work up his California Collections, his "California Water Birds, No. 1. Monterey and Vicinity from the Middle of June to the End of August" embodying the results of this study. Soon, however, he was invited to become the head of the Natural History Museum that was planned

at Stanford University, and came to California to fill this position; but financial matters making it impossible for Stanford to carry out these plans, he accepted in 1894 the position he was offered of Curator of Ornithology in the California Academy of Sciences, whose collections were stored in the fourth story of a large cement building on Market Street, San Francisco, the rent of the rest of this building constituting the chief funds of the Academy. The Academy at that time was a small and struggling institution, almost wrecked spiritually by the scientific warfare that had swept over it a few years earlier, as the earthquake and fire were destined to wreck it physically a few years later; there was even a possibility it might be swallowed by other institutions, anxious to utilize its printing fund. Its collection of birdskins, though including some of much historical and scientific value, was but small. Here at last Loomis found room for his energy, enthusiasm and ability, and things began to develop rapidly. Beautiful series of the skins of land and water birds appeared speedily under his deft fingers and those of his assistants, and his persuasiveness enlisted the financial help of men of wealth in San Francisco.

In 1902 he was elected Director of the Academy, a position of power but carrying no increase in his meagre compensation as Curator of Ornithology. But little did Loomis care for that, his whole heart and soul were bound up in the study of ornithology, and in making the California Academy one of the great scientific institutions of the world. For a time he seemed in a fair way to realize his ambition, the collections of the Academy, especially that of water-birds, grew with amazing rapidity, as did the library, and he was active in all domains of science. A trip to the Farallon Islands, which he soon made, showed him how inimical to the welfare of the birds there breeding was the work of the eggers, who annually brought thousands of eggs, particularly of the Murre, to the San Francisco markets. Immediately he became active in their defense, enlisting the aid of the California Legislature, and of Theodore Roosevelt, already an active conservationist, and the Farallons were made a Reservation, on which none could trespass, even scientific collecting being prohibited. That this last result was altogether to his liking we may be sure

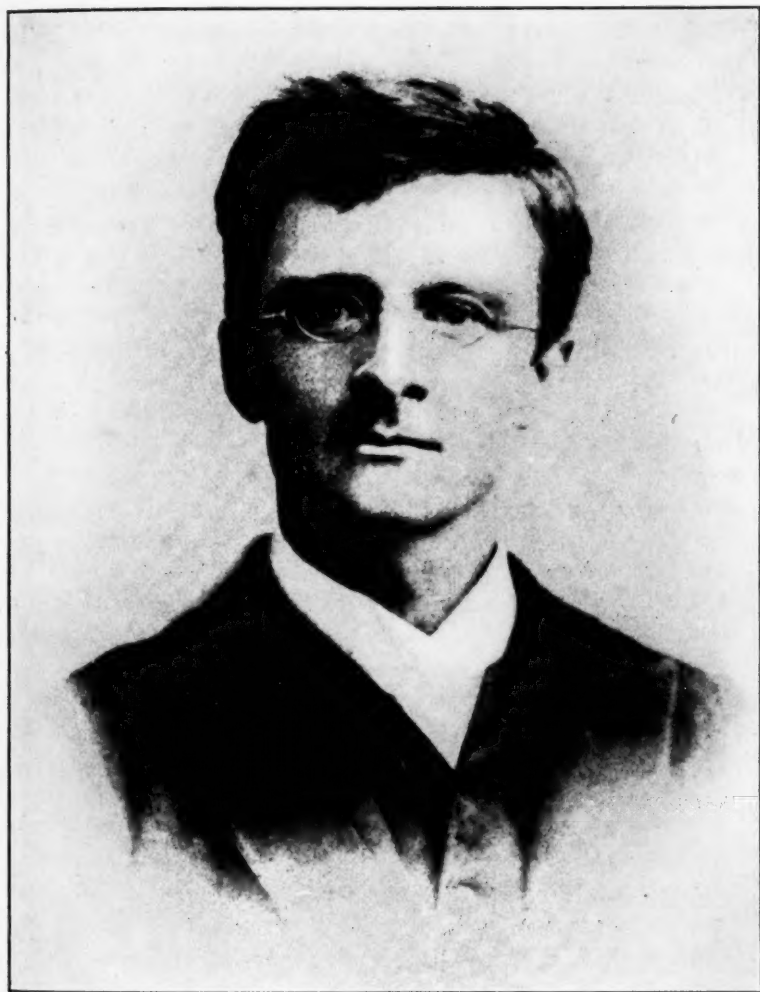
was not the case, as he believed most firmly in scientific work of all kinds, and, I have no doubt, often sorrowed that his labors had barred the scientific student as well as the eggers. But he did at least save the birds, and more sensible views some time in the future in those of authority will no doubt open this reservoir of knowledge to those who can put it to good use. And the eggs themselves constitute one of the natural resources of the country, and should be used and not abused, as has been done for generations with similar colonies of seabirds in the Old World. But we Americans seem unable yet to choose the golden mean, we either revel in unbridled license or shut the door completely by prohibition. Let us hope that some day the nation will reach the moderation of middle age!

Attending a meeting of the American Ornithologists' Union in the fall of 1902 he invited the Union in the name of the California Academy of Sciences and the Cooper Ornithological Club to hold a special meeting in San Francisco the following spring, which was accepted. This was in some ways the culmination of his career, not only was he in a position to do to the fullest the work he loved, but he had with him for a time old friends with a kindred love of nature to rejoice with him in what he had accomplished. No one who attended that Congress and took part in the subsequent excursions to points of ornithological interest will ever forget it and its joys.

Under his administration the Academy was thriving in a wonderful manner, and his teaching ability was showing itself by the training of young men as collectors and scientists to carry on when he should be gone. Rollo H. Beck, who has been for many years head of the Whitney Pacific Expedition of the American Museum of Natural History, Edward W. Gifford, Curator of the Museum of Anthropology of the University of California, and Alvin Seale, head of the Steinhart Aquarium of San Francisco, were his boys, to whom he disclosed the joys of nature study, taught his own skill in taxidermy, inculcated the scientific standpoint, and instilled a respect and fondness for himself that the years have but strengthened.

But this picture of peace, happiness and scientific achievement was rudely broken. On April 18, 1906, came the earthquake

followed by fire, and the Academy building and its contents tumbled like a house of cards. He has himself told me how he crawled up the crumbling staircases with the fire coming ever nearer and the ever-present danger of another shock that would overwhelm the tottering ruins, and rescued some of the most precious papers, books and birdskins, before he was forced to remove his crippled father and himself beyond the raging conflagration. And then he did not sit down and mourn over the destruction of what had been his lifework and joy, but made at once plans for the future that a new and greater Academy might rise from the ashes of the old. Only a man of his stern and uncrushable determination could have filled the place. Even then under the care of Mr. Beck a boat was approaching San Francisco laden with the spoils of the Academy's seventeen months' trip to the Galapagos Islands, and how great that collection was the reports that have been since printed tell. In the awful confusion, how great none of us who were not there can even imagine, and the profound depression of spirit of those who saw their all and hopes for the future lost, he never faltered, was sure San Francisco would arise fairer than ever, and laid his plans, and when the boat sailed in he had rooms ready for the collections and in his mind plans for a far greater institution. Then he constituted himself an insurance agent, and with the assistance of his friend, Mr. Theodore Hittell, collected from the companies the entire insurance of the Academy; a real estate broker, and leased to good advantage the Market Street site of the old building; a politician, and induced the Legislature to declare the Academy property free of taxes forever; and an architect and builder, overseeing the plans for the new building and taking heed these plans were properly carried out, and in wisdom using his influence to have the new building placed in Golden Gate Park, so that any possible future holocaust would leave the collections unmarred; and, in addition to all this, collecting most actively himself and through his assistants, asking the museums and libraries of the world to contribute what they could spare, and thus by 1912 amassing another collection of 19,000 birdskins, comprising one of the finest series of Tubinares in the world, and a new scientific library of great size and value.



LEVERETT MILLS LOOMIS IN EARLY MANHOOD.



His work on the ocean near Monterey he continued personally or through his assistants, and from these labors and collections the other parts of his "California Water Birds" was written—a series of papers that give a full account of the water-birds living, migrating or wandering in that part of the Pacific during the entire year, and more valuable for exact information than any similar set in existence. But he was not contented simply to write ornithological papers, his aim was to express his thoughts in the best English for the purpose, accurate and concise and with the meaning never clouded by rhetoric. His friend, Mr. Ransom Pratt of San Francisco, tells me that for over twenty years he tried to condense into one lucid sentence the causes of bird migration before he felt satisfied with the result.

During these years he added several new birds to the list of those known to occur in California, and described one subspecies—*Junco hyemalis pinosus*, the Point Pinos Junco, named for its home at Point Pinos off whose rocky coast he had spent so many hours and days. Of this latter, though a good subspecies as subspecies go, he once told me he was much ashamed, as the time came when he felt that minute, unstable differences should not be dignified in nomenclature, that species have a genuine existence but that subspecies are figments of the imagination. Not that these differences that have been named do not exist, as he said when he and I were examining his stand, but that they had no intrinsic value, only extrinsic and evanescent. And he had all right to his belief, as so far no one has been able to prove the contrary—that they are incipient species.

Off Monterey at certain seasons wonderful flights of Shearwaters occur—I remember one a few years ago that must have contained millions of the Sooty, and all through the year Tubinares are to be found of species differing with the seasons, and some of them not recorded from elsewhere in the Western Hemisphere. As these birds never leave the oceans except to breed, few can study them in life and still fewer have sufficient series to render their closest decisions of value. What wonder that Loomis became more and more enthralled in the study of this group, as he had the field experience, the necessary specimens, the literature, and the scientific training to master the problems

presented! And more and more his mind became fixed on these birds, the first fruits of his study being "A Review of the Albatrosses, Petrels and Diving Petrels," published in the 'Proceedings' of the California Academy of Sciences for 1918. Before this however, in 1912, he had lost his position as Director of the Academy; but his interest in its collections and his love for the institution never abated. With the activity he showed in so many different quarters, the reformer's sureness he is right, and the inability to compromise, which we have seen was innate, he could not fail to make active enemies, enemies who often believed he was wrong as sincerely as he believed he was right. They became many and he was one, though with loyal friends, and finally their views prevailed. But though he might lose his position and power his love was still with the Academy, and he was planted so firmly in the soil of San Francisco that transplanting was impossible. The books were there, the birds were there and his heart was there. So day after day for more than fifteen years if one entered the bird-room of the Academy one would find him seated by a window, his books about him, his beloved *Tubinares* easily accessible, and his whole spirit immersed in the study which he believed would bring more light to the world on these wandering seabirds. Thus he sat day after day, month after month, year after year, reading, conjecturing, planning, seeing ever deeper into the relations of these birds, adding now a reference, then polishing a sentence, and receiving with joy his friends from near and his friends and fellow students from far away. Short weekly trips to the beautiful environs of San Francisco, and holidays spent with Mr. Berwick at Pacific Beach were his chief diversions. Thus these later years were passed in intense study, leaving him always a little thinner, a little grayer and a little more bent. But with the years went also the sternness that had been his in the days of conflict, his countenance became ever more genial, and I felt when I was with him last at the annual meeting of the Cooper Ornithological Club in San Francisco in April, 1927, that he had at last attained peace.

Thus death found him on January 12, 1928, after a short contest with the acute pain of angina pectoris, at harmony with the world, the Academy marching forward on the course he had

planned, and the work to which he had devoted all the knowledge and wisdom of his riper years almost ready for the press. And so we must leave him, the Academy and his "Tubinares" his monument.

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Pasadena, Calif.

NOTES ON THE BIRDS OF COBB'S ISLAND, VIRGINIA.

JOHN F. KUERZI.

A SERIES of relatively small, outlying islands extends practically from southern New Jersey and Delaware to the Carolinas, Georgia and beyond, and is largely responsible for the now well-known "inside course to Florida." Most of these islands amount to more or less naturally "developed" sand-bars; many of them treeless, but all with their allotment of salt-marsh on the inner or "bay" side. The majority of them, remote enough to escape profitable conversion into summer resorts, are virtually uninhabited, except for the invariably present crews of the coast-guard, and a few sporadic gunners and fishermen. Lacking some of the hazards of the mainland, on many of these islands isolation conditions are favorable for breeding and migrating Gulls, Terns, shore-birds and waterfowl, and consequently these birds frequent them annually in great numbers. Curiously others, apparently equally favorable, are practically abandoned and barren of all bird-life, at least during the breeding season.

For many years, probably one of the best known of these islands to ornithologists as well as sportsmen, has been Cobb's Island; perhaps best described as a strip of sand some seven or eight miles in length, with fairly sizeable dunes, and an extensive area of salt marsh and tidal flat on the inner or landward side. In relation to the mainland, it is approximately eight miles off the Virginia coast and nearest to the small fishing town appropriately termed "Oyster," which in turn is roughly equidistant to either Cape Charles or Eastville. Though naturally somewhat remote and isolated it is, at the present time, remarkably accessible. From Cobb's Island, one is within easy striking-distance of several other islands, such as Smith's, and directly below and across the channel, is Cordwell's Island; about a mile in length, of very recent "origin," upon which, at the time of our visit, about half the skimmers and a fair proportion of the breeding gulls, Terns and shore-birds were to be found.

Relatively little has apparently been written concerning the birds of Cobb's Island since the visit of Dr. Chapman,

about 1900, although it has been visited by several different parties of observers, within the past five years. During the last twenty-five or more years, owing largely to protective measures, the status of almost all of the local breeders has altered so materially that it seems of interest to summarize the results of two visits to Cobb's Island, recently made by my brother Richard and myself; the first, June 22 to 25, 1927, and another in September 5 to 13 of the same year.

Perhaps a brief comparison of present conditions with the immediate past would illustrate graphically what protective measures can accomplish, if properly directed. Less than thirty years ago, the Least Tern, for instance, was practically extinct as a breeding-bird on Cobb's Island, and the ranks of many of the other Terns were greatly depleted, owing to the extent to which plume-collecting for commercial purposes, was being practised. "Egging" and spring-shooting vastly decreased the numbers of breeding Skimmers, and shorebirds, such as the Oystercatcher, Willet, and Wilson's Plover; particularly the latter "sport" since the spring shooting-season is said to have frequently coincided to some extent with the birds' actual breeding period. Consequently by 1900, Dr. Chapman found the breeding-birds of Cobb's Island, in addition to the Skimmers, consisted of: ". . . several hundred Common Terns, a small number of Forster's, about eight pairs of Gull-bills, a pair each of Oystercatcher, Willet, and Wilson's Plover, and several hundred Laughing Gulls." Fortunately however, with increased protection, the local breeding-birds are increasing, apparently in regular progression. At the present time, the Least Tern is again well established, and practically all of the other breeders, including the Oystercatcher, Willet and Wilson's Plover, are evidently appearing annually in larger numbers. There seems to have been a particularly marked increase in breeding-birds over the last five year period, judging by the reports of others who have made surveys in June, during that time. However, lest we become unduly optimistic, it is well to remember that Cobb's Island is not, at the present time, a sanctuary for birds, and despite the efforts of Capt. Cobb and others, certain abuses, such as "egging," are still practised to some extent. Also the sheep which are now kept at large on the Island, doubtless un-

wittingly break-up many nests annually, and destroy innumerable young birds. In addition, the natural hazards must of course be considered, such as unusually high tides, storms, etc. which yearly take their toll of bird-life from any sea-coast breeding resort.

The present breeding birds of Cobb's Island might be thus briefly summarized: Laughing Gull 750 (est.). Caspian and Royal Terns probably no longer breed on the Island but either species is occasionally noted flying off the Island in June, and doubtless breed nearby; perhaps, as has been suggested, somewhere in the vicinity of Smith's Island. Common Tern, plentiful, 275 (est.); Roseate Tern, sparingly, 10; Least Tern, well established, 50; Forster's Tern, numerous on salt marsh, 40; Gull-billed, well distributed, 32; Skimmer, 550 (est.); Clapper Rail, abundant; Willet, 10 pairs, mostly at the eastern end of the Island, where the species is locally plentiful; Wilson's Plover, 12; Oystercatcher, 25. Owing to the difficulty of differentiating the sexes of many of the above species in the field, it was thought expedient to state the total number of adult birds present, rather than the probable number of breeding pairs. There is said to be a decided fluctuation in the numbers of certain of the breeders from year to year, so that the observations of any one year are probably not an absolute index of what can be found there, at any particular time, thereafter.

Cordwell's Island being only about an eighth as large as Cobb's, naturally has a somewhat smaller breeding total, but certain of the breeding species, such as the Skimmer, are more abundant there in proportion to the amount of available environment. In June, stretches of sand on the lower end of this island are literally strewn with the remarkably handsome eggs of the Skimmers. The following "counts" are of interest by comparison with those given above: Laughing Gull, 150; Common Tern, 25; Roseate Tern, 6; Least Tern, 15; Forster's Tern, 18; Gull-billed Tern, 12; Skimmer, about 450 (est.); Willet, 6; Wilson's Plover, 8; Oystercatcher, 6.

An interesting and rather unexpected feature of the June trip was the relative abundance and variety of certain of the shore-birds. On June 22, there were some 15 Dowitchers (in breeding plumage); about 250 Knots (mostly in winter plumage); Semipalmated Sandpiper, 300 (est.), and Least Sandpiper, 16; Hudsonian Curlew, 30;

Black-bellied Plover, 12; Ring-necked Plover, 10; and several Turnstones. There was a very marked increase in the number of Knots on the 23rd (at least 450 being present), but by the 24th they had decreased to about 150. No perceptible change in the number of Dowitchers was observed, but most of the others varied noticeably from day to day, suggesting the possibility of migration. Of course, some are almost sure to have been summering non-breeders, but it has been suggested that if the birds were in regular migration, the Knot, Semipalmated Sandpiper, Black-bellied and Ring-necked Plover, and Turnstone were probably north-bound; while the Dowitcher, Least Sandpiper and Curlew were south-bound migrants. However, whether or not these birds were regular migrants, is probably largely a matter of speculation, and the present data are too fragmentary to warrant any positive assertion. Mr. J. T. Nichols has further suggested that some relation is thought to exist between summering and wintering shore-birds; at least to the extent that certain species are apparently somewhat more apt to be found in summer in localities in which a few may winter. This is an exceedingly interesting hypothesis, but unfortunately we do not know to what extent any of the species in question may winter. Judging by the reports of the local inhabitants, some shore-birds are found on the Island in winter, but it is not always clear to which species they belong. However, it does not seem altogether rash to assume that a few "enterprising" Red-backs, Sanderlings, Knots, or even Black-bellied (not to mention Killdeer) Plovers, may linger well into winter, or even spend the entire season; especially in view of their occurrence in recent years much further north, along the New Jersey coast in December and early January.

On June 24, two Cormorants (sp.?) were noted flying in a northerly direction off the beach, apparently in regular migration. No less than six American Scoters were observed on the same date (three of them adult drakes). These birds were very likely non-breeders since about the same number was found there in September.

The relative proximity of much favorable habitat for land-birds along the adjacent mainland, makes a trip to the vicinity of Cobb's Island, in the breeding season, more attractive. There is a stand of pine-woods just south of Eastville, and on the west side of the

highway, which is probably characteristic of that particular section of tide-water Virginia. In June, it fairly rings with the songs of Mockingbirds, Cardinals, Titmice and Carolina Wrens. The Summer Tanager, Yellow-throated, Pine, Prairie, Kentucky, and Southern Parula Warblers are also present in numbers, in addition to the Gnatcatcher, and Acadian Flycatcher, and in the evening it is frequently possible to hear Chuck-wills-widows "performing." Nearby the Brown-headed Nuthatch and Red-bellied Woodpecker can usually be found, but both of these species are probably more apt to be observed in a rather interesting place directly east of the village (Eastville). Here in a somewhat secluded inlet, the Yellow-crowned Night Heron can occasionally be found. In June several were observed, and in July of the previous year they were reported by others in larger numbers. Limitations of space prevent a more detailed treatment here, but by way of indicating the relative abundance and variety of bird-life, the fact may be cited that it is not particularly difficult to record over one hundred species, as a combined list for both the island and the neighboring mainland in June.

A trip to Cobb's Island in September is naturally interesting by comparison with one in the breeding season, and also because of the shore-bird migration. The return or fall flight of Curlew is apparently a regular feature of the early autumn on the Island, and is obviously well-known to the local inhabitants. According to their reports, the birds seem to collect on the neighboring islands during migration periods, and as the majority appear to roost on Cobb's Island, there is consequently a perceptible evening flight to, and an early morning flight away from, the Island. The birds probably reach their peak of abundance locally in late July or early August, depending upon general conditions, and are then said to be present literally "by the thousands." During these times, the Curlew, we were told, frequently outnumber all the other shore-birds combined. To give some idea of the abundance of the species locally, it is perhaps of interest to note that on the evening of September 9, probably long after the main flight had passed to the south, over 1500 birds were present.

While it is true that shore-birds are frequently more abundant numerically in July and August, nevertheless probably a greater

variety can occasionally be found on this coast later in the season. For instance, it was not particularly difficult, during early September, to see on Cobb's Island, twenty species of shore-birds in a day; the "record," so to speak, was twenty-three on September 10, and the total for the period from September 5 to 13, was twenty-eight species. Some picture of the relative abundance of certain of the more prominent species, may be gained from the following numbers, many of which were probably obtained long after the actual period of greatest abundance had been reached: Stilt Sandpiper, 10, September 9; Do witcher, 50, September 6; Knot 1200, September 5; Pectoral Sandpiper, 35, September 9; White-rumped Sandpiper, 12, September 10; Least Sandpiper, 50, September 11; Semipalmated Sandpiper, 1400, September 10; Sanderling, 550, September 12; both Yellow-legs unprecedentedly scarce; Willet, 25, September 10; Curlew, 1500 (est.), September 9; Black-bellied Plover, 3500 (est.), September 7; Ring-necked Plover, 450 (est.), September 8; Turnstone, 56, September 10; also Wilson's Plover, 12, September 5; Oystercatcher, 42, September 9; Baird's Sandpiper, satisfactorily observed on September 7; Upland Plover, 1, on September 10; Western Sandpiper, 5, on September 12. Two Golden Plover on September 9 and 10, under very satisfactory conditions, seem unusually early.

Both Caspian and Royal Terns were more conspicuous than in June; the former being about twice as numerous as the latter; the maximum number of Caspian Terns was eighteen on September 9. The other Terns were mostly less numerous individually than in June, and the Gull-bill, was conspicuous by its absence. At least 3500 "Shearwaters" (as the Skimmers are known locally) were observed on September 10 and 11. Southern Herons had been unusually scarce all season, and there were practically no other rare summer "vagrants," from further south. Parasitic Jaegers were occasionally noted flying off the beach, and on September 11, at least one fine Pomarine Jaeger was satisfactorily observed from the beach. None of the other pelagic birds was sufficiently close to shore to be identifiable from the beach. About 175 Double-crested Cormorants were noted flying in a southerly direction, offshore, on September 9, and smaller numbers were observed under the same conditions, on several successive days.

In summing up, we may say that a trip to Cobb's Island in June, will well repay the effort involved, particularly to one interested in breeding birds. However, a visit at any other time ought to prove equally interesting from the view-point of the student of migration. It is perhaps pertinent to add that such trips as these, besides being of positive value, and a source of much real and genuine enjoyment, also widen the scope of ones field-experience, and in that way form a valuable basis for other excursions of a somewhat more extended nature.

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VARIATION AND DISTRIBUTION IN TWO SPECIES
OF DIGLOSSA.BY JOHN T. ZIMMER.¹

AMONG the birds inhabiting the Andes of northern South America, the various members of the genus *Diglossa* (family Coerebidae) present some of the most interesting problems of distribution and taxonomy. Included in this genus are several species which exhibit certain parallelisms that are most puzzling, and more than one arrangement has been suggested to explain the apparent anomalies. *D. gloriosa* bears a striking general resemblance to *gloriosissima* but the two birds inhabit distinct and distant areas. *D. lafresnayii* resembles *humeralis* but the two are found together over a portion of their ranges. *D. brunneiventris* occurs without apparent variation in two widely separated regions.

In a comparatively recent paper (Ornith. Monatsb., Vol. 34, pt. 3, p. 83, 1926), Stresemann unites *Diglossa gloriosissima*, *gloriosa*, *humeralis* and *carbonaria* in one "formenkreis." Acting on the ideas suggested by this arrangement, I have made an extended study of these and related forms and have reached somewhat different conclusions. Stresemann's arrangement is possible on purely geographic grounds but I believe that it takes advantage of one case of superficial resemblance and ignores several cases of more basic similarity involving a number of forms not included in his survey.

The form known as *gloriosissima* resembles *gloriosa* in its general style of coloration, being black with a rufous crissum, belly and lower breast, a pale gray shoulder and a dark gray rump, but there the resemblance ends. It is a much larger bird than *gloriosa* and has a larger and longer bill which, although its dorsal aspect is not so strikingly distinct, presents a very different appearance when viewed from below and measured along the gonys. The feathers of the forehead and crown have their tips more pointed than in the other species, and more distinctly outlined, giving a noticeably

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scaly appearance; the rump is darker and less grayish, more nearly uniform with the back; the gray of the shoulder is distinctly bluish in tone, not ashy carbon gray; the under wing-coverts are whiter, less grayish; and the black of the flanks is sootier.

In all of these distinctive respects *gloriosissima* finds a counterpart in *lafresnayii* although the latter bird is all black except for the gray shoulder, dark gray rump and pale under wing-coverts. In the opposite respects *gloriosa* is matched by *humeralis* which superficially resembles *lafresnayii*. It is quite possible, therefore, that the resemblances in general color between *gloriosa* and *gloriosissima* and between *humeralis* and *lafresnayii* are accidental or at least not of taxonomic importance since more numerous and varied characters of form, size and details of color suggest a different relationship. In other words, *lafresnayii* may be allied to *gloriosissima*, and *humeralis* to *gloriosa*. With respect to the last two forms, this arrangement is in accord with Stresemann's proposal. Before examining *carbonaria* there are other forms which must be taken into consideration.

In the first place the bird described by Bangs as *nocticolor*, from the Santa Marta region, presents all the distinguishing characteristics of *humeralis* and *gloriosa* as opposed to those of the *lafresnayii* group, and differs from *humeralis* only in the lack of the gray shoulder, having this region black like the remainder of the upper wing-coverts. To bridge this difference, one specimen of *nocticolor* from San Lorenzo, Santa Marta (No. 37799, Carnegie Museum) has most of the lesser upper wing-coverts on both sides rather broadly tipped with the same tone of gray as appears on the shoulder of *humeralis*; another specimen (No. 37891, Carnegie Museum) exhibits faint traces of the same. In *humeralis* the amount of gray on the shoulder is quite variable although the tone is rather constant. The ranges of the two forms are not continuous but individual variation has produced intermediates so that *humeralis* and *nocticolor* are shown to be only subspecifically distinct.

To the southward we know *humeralis* from as far as the Bogotá region although its range may extend farther south along the chain of the eastern Andes where little intensive collecting seems to have been done. Across the Magdalena Valley at Laguneta and thence

southward across central Colombia and Ecuador to north-western Peru, there exists the form known as *aterrima*. This bird is black like *humeralis* and *nocticolor* but without gray on shoulder, rump, or upper wing-coverts, although in the other characteristics of size, shape of bill and form of frontal plumage it agrees with the other two forms. I have found little evidence of intergradation in nineteen specimens of *aterrima* which I have examined, but in three examples from Almaguer and Laguneta (unfortunately not fully adult), there are ill-marked traces of grayish tips on the lesser upper wing-coverts; any suggestions of possible grayish color on the rump are lost in a brownish tinge due to immaturity. However, there is no material at hand from the Andean highlands near La Candela or from the ridge of the eastern Andes south of the Bogotá region where intermediates should occur, since it is there alone that the ranges of *aterrima* and *humeralis* could meet; elsewhere they are separated by the valley of the Magdalena River at an elevation below that of the temperate zone inhabited by these birds.

Geographically there is no valid objection to the specific unity of *aterrima* and *humeralis*. Chapman's record of *aterrima* from Chipaque, Colombia (Bull. Amer. Mus. Nat. Hist., Vol. 36, p. 581, 1917), within the range of *humeralis*, was based on a single specimen which proves, on examination, to be an undoubted *humeralis*. Sclater records one example of *humeralis* from Ecuador (Cat. Birds Brit. Mus., Vol. 11, p. 8, spec. "i," 1886). Dr. Hellmayr has examined this specimen in the British Museum and writes me that it is an undoubted *humeralis* but that its origin is open to question. It is a dealer's skin procured from Dillwyn, without any original label and of preparation by no means Ecuadorean, while skins of various other species, likewise secured from Dillwyn and of similar preparation, are marked either "Colombia" or "Bogota." In view of these facts and without corroborative specimens from Ecuador, this record should be discarded. With regard to Sclater's record of *aterrima* from Santa Marta (Cat. Birds Brit. Mus., Vol. 11, p. 8, specs. "a-c" and "d," 1886), Dr. Hellmayr writes me that the specimens in question are typical *nocticolor* with gray rump and black shoulder. There is thus no definite knowledge of the occurrence of any of these forms within the range of any other.

In Peru, *aterrima* has been found at El Tambo and at Cutervo. At Chota, a short distance south-east of Cutervo, another form, *brunneiventris*, occurs. This bird is like *gloriosa* above; below it is paler rufous with the flanks gray, instead of sooty, and with the black of the breast and throat restricted to a large chin spot, while the rufous of the breast is continued forward in broad malar stripes. Taczanowski (Orn. Per., Vol. I, pp. 420, 421, 1884) has recorded *brunneiventris* also from Cutervo on the authority of Stolzmann, but a perusal of his original reports on Stolzmann's collections (Proc. Zool. Soc. Lond., 1879, p. 225; 1882, p. 8) shows that the species was collected only at Chota and Tamiapampa while the Cutervo record is based solely on field notes. An examination of five males of *aterrima* from El Tambo has shown little evidence of intergradation with *brunneiventris* and it is largely on geographic grounds and group-characteristics that I am assured of the continuity of the series. While *aterrima* cannot, with present material, be shown to intergrade directly with the adjacent forms, it does unquestionably and exactly fit into a gap in the distribution of the group which otherwise would be difficult to explain; and, in a complete survey of all the associated species, its relationship to *brunneiventris* can be seen to better advantage through *nocticolor*, *humeralis* and *gloriosa*.

Throughout the highlands of Peru and extending over the border into Bolivia, *brunneiventris* occurs with a certain amount of individual variation not associated with locality. There are considerable differences in the tone of rufous on the belly, in the amount of gray on the flanks and upper tail-coverts, and in the extent of the rufous malar stripes. Most of the specimens show a distinct line of pale gray above the eye but this is not always present. In extremes of these variations some examples come very close to certain specimens of *gloriosa*. It is true that the ventral rufous color of *gloriosa* is usually deeper, but in one specimen from Mérida, Venezuela (No. 57130, Field Mus. Nat. Hist.) it is paler than in several Peruvian skins of *brunneiventris*. The flanks in the same example are not the usual sooty black but are distinctly gray, the under wing-coverts are unusually pale, and there are a few rufous feathers in the malar region suggesting the malar stripe of the other form. A specimen from Santo Domingo, Venezuela

(No. 190448, U. S. Nat. Mus.), has the lower flanks inclined toward gray, the grayish color of the rump as broad as in some skins of *brunneiventris*, and the rufous feathers of the malar region extended to form a distinct, elongate spot, although the belly is dark rufous as in typical *gloriosa*. Another skin from Santo Domingo (No. 190447, U. S. Nat. Mus.) is like normal *gloriosa* except for a small malar spot of rufous. No. 89220, Carnegie Museum, from Teta de Niquitao, Venezuela, is similar to the last example; No. 89219 has the malar spot a little more pronounced. No. 24286, Field Mus. Nat. Hist., from Mérida, has a small malar spot of rufous on one side only; Nos. 57131 and 57132 are typical *gloriosa* without any mystacial markings.

On the other hand, some of the specimens of *brunneiventris* show the malar stripe separated from the base of the bill by an area of black connecting the chin and the auricular region; in other examples the stripe reaches the bill. No. 256272, U. S. Nat. Mus., from Paramillo, Colombia, has dusky subterminal bars on the lateral feathers of the throat, concealed only by narrow rufous tips and tending to reduce the extent of the malar stripe and sever it from the rufous of the breast. The figure of the type of *brunneiventris* given by Des Murs (Iconog. Ornith., pl. 43, 1847) shows the rufous malar stripe completely separated from the pectoral area of the same color and although this apparent separation may have been due to disarrangement of the plumage it possibly may have been exactly as shown, due to an increase in the amount of black on the sides of the lower throat. However, in all these particulars there is a significant approach of *brunneiventris* and *gloriosa* to each other, while the characters of the group, as compared with those of *lafresnayii*, are the same in both forms.

Curiously enough, *brunneiventris* occurs in north-western Colombia, beyond the range of *aterrima*, with no apparent differences from Peruvian examples. All of the Colombian birds have blackish outer margins on the extreme lateral pectoral feathers, thus extending the black of the neck a little farther ventrally in an approach toward *gloriosa* or *humeralis*; but some of the Peruvian skins show the same condition. The size of the Colombian specimens falls well within the range of variation of my Peruvian series and only one example (that mentioned above) has blackish

subterminal bars on the sides of the throat. I am not able, therefore, to separate the Colombian and Peruvian birds even subspecifically except on the sole ground of geographic isolation, which is not adequate for racial distinction.

If isolation were a sufficient ground for racial separation it would be necessary to subdivide the Colombian *brunneiventris* into two subspecies since it occurs on both sides of the lower Cauca Valley where intercommunication is prohibited. On the eastern side, in the central Andes, the range is contiguous to that of *aterrima* which occupies the mountain chain southward past the only place where the central and western Andes of Colombia are connected by high land, at the headwaters of the Cauca River. The distribution of either form west of the Cauca River is unknown except for the records of *brunneiventris* from Paramillo. In order for this "colony" to have become established in its present divided form, it must have entered the region before the valley was eroded to a prohibitive depth or before the bird became an inhabitant of the temperate zone, or else it must have occupied, at one time, part of the range now inhabited by *aterrima*. I believe the last theory to be most in accordance with other facts which I shall discuss a little later.

Southward, *brunneiventris* ranges into north-western Bolivia. In the British Museum there are three adult birds collected by Buckley at Khapaguaia (Yungas of La Paz?), and one specimen from Sorata; two of the Khapaguaia specimens are recorded in the Catalogue of Birds as from "Simacu." According to a letter from Dr. Hellmayr, all of these are typical *brunneiventris*. However, among various examples of the Bolivian *carbonaria*, recorded and otherwise, there are certain specimens which indicate a close relationship between these two forms. The more southern form, *carbonaria*, has the uniform black throat and breast of *gloriosa* and the gray flanks of *brunneiventris*, while the crissum and upper parts are much the same in all three forms, but the entire belly is gray at variance with the rufous abdomens of the other two birds. Berlepsch, in manuscript notes, cites two males from Iquico and one male from La Paz as hybrids between *carbonaria* and *brunneiventris* but does not describe them. He lists another example as *carbonaria* and describes it as having a rufous feather in the malar region.

Another bird from Iquico is said to have a mixture of rufous in the middle of the abdomen.

The specimen with the rufous malar feather is now in Field Museum of Natural History (No. 56872) and is simply as described. One of the so-called hybrids is in the U. S. National Museum (No. 211680). It has a distinct, broad malar stripe of deep rufous on both sides, about 11 millimeters long, one of the lower pectoral feathers exhibits a rufous spot, and the gray of the rump is quite restricted. A specimen in the Carnegie Museum (No. 85712) from Incachaca, Cochabamba, has the gray of the rump fully as extensive as in *brunneiventris* while the lower mid-belly is pale rufous and the gray shoulder patch is paler than is usual in *carbonaria*. Another example from Incachaca in the Carnegie Museum (No. 81514), has two or three rufous marks in the malar region of one side, the whole mid-belly is pale rufous and the gray of the rump is quite extensive. Dr. Hellmayr, examining the specimens in the British Museum for me, writes that one specimen "ex Bolivia" has the entire malar region and a stripe along the middle of the breast and belly rufous. On the other hand, occasional specimens of *brunneiventris* from Peru show faint grayish tips to the rufous abdominal feathers which may be significant. These examples, intermediate in varying degree, seem to point to intergradation instead of hybridization and to show that *carbonaria* and *brunneiventris* are only subspecifically distinct.

It is interesting to speculate on the probable origin of the various forms of this group. Judging from the relative geographical positions which they now occupy, it appears to me that *brunneiventris* represents the most primitive form of the group. Its original range, whether or not it was coterminous with the range of the entire species today, may have been divided into three parts by the development of a melanic race in the middle which extended its range in all directions and usurped a large portion of the central area occupied by the group. An eastern segregated unit then developed into the somewhat distinct *gloriosa*; the north-western and southern colonies remained alike and less modified, although from the southern division there arose a peripheral variety, *carbonaria*. Thus *gloriosa*, although separated from the range of *brunneiventris*, tends to revert to the more ancestral form by the production of

rufous malar spots and paler rufous belly; similar reversions in the case of *carbonaria* amount to definite intergradation since *brunnei-ventris* has an immediately contiguous range.

Meanwhile the melanic form which supplanted *brunnei-ventris* or its ancestor in the center of its range, drove the north-western colony of that form northward, either following its retreat or encroaching on its domains, until it passed the head of the Cauca Valley and was left in two dissociated units on opposite sides of the river. The south-western colony similarly retreated southward. The fact that *aterrima*, although least like *brunnei-ventris* of all the races, stands exactly in the midst of three morphologically inseparable units of that form, indicates that it probably represents the original melanic variant and that it probably was mutational.

Morphologically, *aterrima* is nearer to the Santa Martan *nocticolor* than to the adjacent *humeralis* while *humeralis* is nearer to *brunnei-ventris* than is either of the others. It seems probable, therefore, that *humeralis* is a later, atavistic development which appeared in the middle of the range of *aterrima* and divided it, cutting off a northern colony. This developed into *nocticolor* or had already developed into that race before it was permanently separated from the other races by the isolation of the Santa Marta plateau.

This theoretical account of the racial phylogeny of the group may not be the correct one but it is an attempt to account for the peculiar distribution in existence at the present time. The fact that one member of the group, *brunnei-ventris*, occupies three distinct areas separated by the range of another race suggests that, in this case, an older form was divided and remained constant at the opposite ends rather than that three identical forms developed at the periphery while a fourth, nearly similar, race developed at another peripheral point.

Whatever course was followed in the evolution of the group, I believe that the relationships of the six existing forms are so close, directly and indirectly, as to justify their assemblage into one modern species. This species will have to take the name *carbonaria* as the oldest one in the group. The accompanying map (fig. 1) will show the distribution of the various subspecies.

Returning to *lafresnayii* and *gloriosissima*, we find, as noted

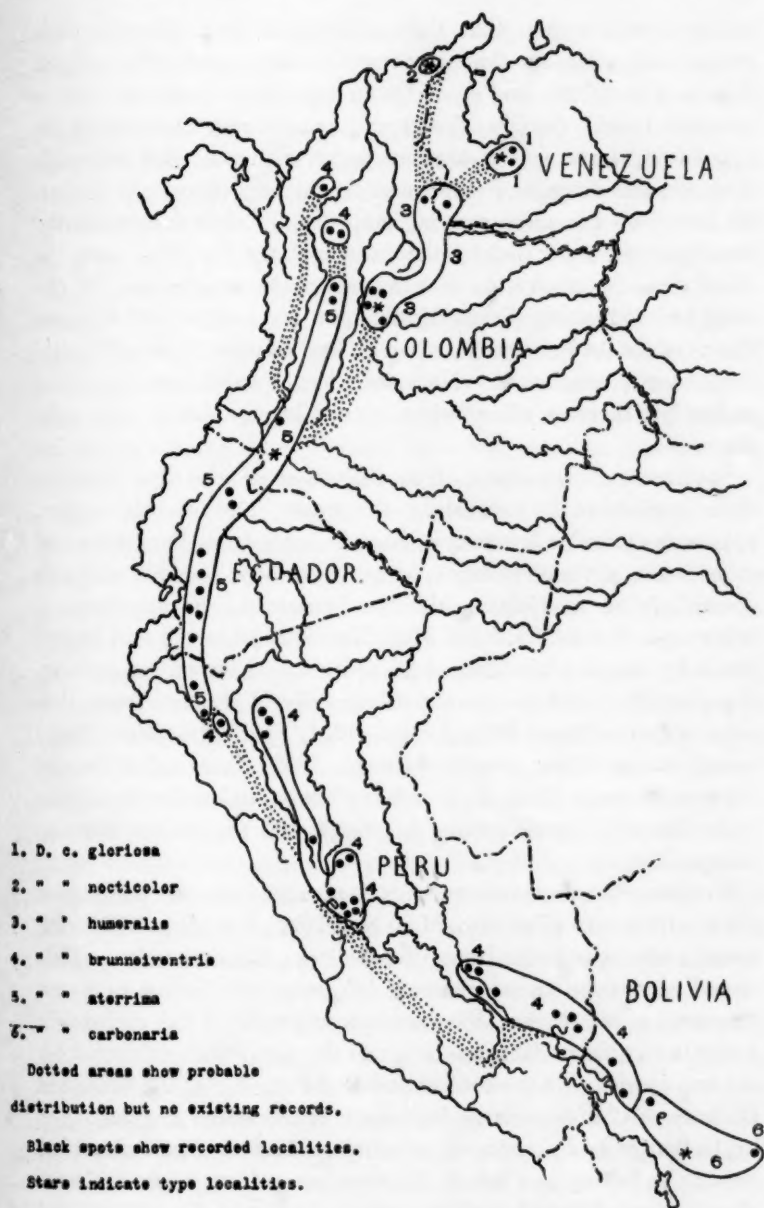


Fig. 1. Distribution of *Diglossa carbonaria*.

earlier in this paper, that they differ from each other in their general coloration but that they resemble each other sufficiently in details of size, form and special color to suggest close relationship between them. Geographically this relationship meets with no opposition, for nowhere does one occur with the other although their respective ranges, as known at present, are almost contiguous. As shown on the accompanying map (fig. 2), their ranges for the most part are separated by the valleys of the Rio Patia and the Rio Cauca, but above the headwaters of these streams, in the neighborhood of the Cerro Munchique, the central and western chains of the Andes come together, and at this point alone *lafresnayii* could meet *gloriosissima*. No material is at hand from this exact region but there is other evidence that intergradation may take place.

Specimens of *gloriosissima* from the western Andes near Popayán show considerable black along the flanks, and in this respect approach closer to *lafresnayii* than do birds from Paramillo and other more distant points. Away from any possible meeting ground, taken at Culata, Mérida, Venezuela, one specimen of *lafresnayii* (No. 24282, Field Mus. Nat. Hist.) has the mid line of the belly tinged with dusky drab or light seal brown—a definite, though slight, approach to the rufous belly of *gloriosissima*. Another specimen from Bogotá (No. 11734, Field Mus. Nat. Hist.) faintly suggests the same condition. With these indications of intergradation at hand, I do not hesitate to unite the two forms under the older specific name *lafresnayii* and to consider them as subspecies.

Southward, *lafresnayii* extends its range into north-western Peru. Chapman (Bull. Am. Mus. Nat. Hist., Vol. 55, p. 638, 1926) records two specimens from Chaupe near Huancabamba. This record carries the known range of *lafresnayii* southward to about the same point reached by the black *aterrima* of the *carbonaria* group, a significant fact in relation to the parallelism exhibited by the two species. In the central Andes of Peru, across the Marañon River from Chaupe, a large *Diglossa* is found which was described by Hellmayr as *D. pectoralis uncinata*. At first glance this bird appears to belong to a totally different group from *lafresnayii* and *gloriosissima*, although it shows certain characteristics in common.

To understand the full relationship it is necessary to examine several other forms whose affinity to *unicincta* is more evident.

The highlands between the Marañon and the Huallaga rivers form the home of *unicincta*, at present known only from the extreme northern portion of this region. Farther east and south, between the Huallaga and Ucayali rivers and near the Junin plateau, occurs a related form, *pectoralis*. Still farther east and south, in the Urubamba River region is found *albilinea*, while in the highlands of Bolivia exists a fourth bird known as *mystacalis*. Between *unicincta* and *mystacalis* there is a graded succession of changes in color, lacking in demonstrably perfect continuity for the reason, I am sure, that all four forms are quite rare in collections and known from but few scattered localities, while the intervening regions where they could come together have not yet been explored sufficiently to bring to light the intermediate specimens.

The Bolivian bird, *mystacalis*, is almost exactly intermediate between *lafresnayii* and *gloriosissima*, having a rufous crissum but a black breast and belly, but it differs from both of the others in the possession of ochraceous-tawny malar stripes. In the glossy, somewhat squamate forehead, large bill, dark gray rump, bluish gray shoulders, white under wing-coverts and general structural features it shows the significant characters which seem to belong to the *lafresnayii* group. The adjacent *albilinea* has the malar stripes paler in front but darker posteriorly, showing a tendency to extend inward toward the center of the breast. In the single adult specimen examined (No. 273384, U. S. Nat. Mus.) there is, furthermore, a rufous feather in the center of the lower margin of the throat, suggesting the development of a rufous pectoral band. The shoulder patches are smaller than in *mystacalis* and the rufous of the crissum has advanced up the lower portion of the belly in a somewhat paler tint. In *pectoralis* the rufous band across the breast has been completed with its posterior border white to a varying extent. The malar stripes have become white anteriorly, the rufous of the belly has ascended farther toward the breast and the gray shoulder patches have been still more reduced in size. In *unicincta*, the pectoral band has become deeper rufous, more like the breast of *gloriosissima*, with its lower border paler but not white. The abdominal stripe is also darker rufous while the

shoulder patches are very small though not obsolete. In some respects *unicincta* is closer to *gloriosissima* than is *mystacalis*. It has the shoulder patches smaller than in *gloriosissima* but the breast and belly are both rufous although disconnectedly. The most striking difference is in the presence of the white mystacial stripes. To suggest the existence of this feature in the more northern birds, one specimen of *lafresnayii* from Páramo de Tamá Venezuela (No. 43672, Field Mus. Nat. Hist.) has several feathers in the left malar region with distinctly whitish subterminal areas. With more material than I have seen, other similarities might be found.

Between *unicincta* and *lafresnayii* directly there is a fairly wide gap but by way of *mystacalis* and *gloriosissima* the hiatus is considerably less. The two forms now could meet only by way of the coastal range of the Peruvian Andes and there are no collections available from that region to show what transition may take place. The occurrence of the malar stripes in the Peruvian races is comparable to the case of *brunneiventris* in the *carbonaria* group, from the same region. Similarly, in the northern portion of the range of the *carbonaria* group a rufous-bellied, non-mustached *gloriosa* exists as a counterpart of *gloriosissima*, although its actual range is different, while in the intervening central region of Colombia, Ecuador and north-western Peru a mostly black *humeralis* and a wholly black *aterrima* duplicate parts of the range of *lafresnayii*.

This similarity in coloration and distribution is, to say the least, remarkable. Whatever the natural causes were which produced, retained or removed the malar stripes or developed black birds in one region and rufous and black ones elsewhere, they seem to have operated with nearly equal effect upon two distinct species of the temperate zone so as to bring into present existence a series of forms in each case which, in a major sense, exhibit the same characters in the same geographic regions.

In the present instance it is possible that *gloriosissima*, perhaps modified by the presence of a malar stripe, may represent the closest approach to the ancestral form. The black *lafresnayii* developed in the central region and separated the Peruvian and Colombian colonies which then were further modified in turn. The Peruvian sector finally broke into several forms segregated by

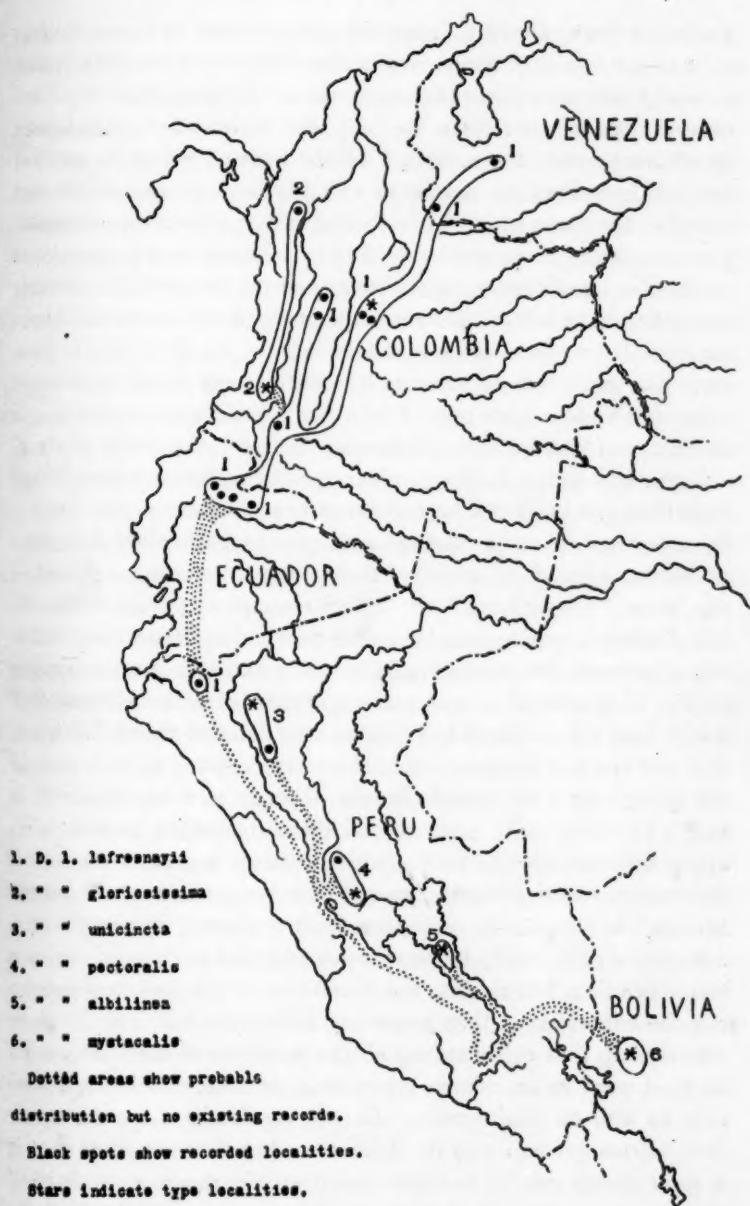


Fig. 2. Distribution of *Diglossa lafresnayii*

the larger river valleys. This subdivision in Peru is interesting in view of the fact that the corresponding form, *brunneiventris*, is not similarly broken up in the same region. Judging from my own observations of *pectoralis* in the field, with which the recorded data on *albilinea* agree, the members of the present group in central and southern Peru are partial to very high elevations and are not found at the lower altitudes in the temperate zone where *brunneiventris* is common; consequently the early formation of deep valleys as distributional barriers would have operated first with the present group and have left it all but isolated on distantly connected highlands while *brunneiventris* would have been, as it still is, able to pass from one mountain to another by considerably wider and more numerous highland bridges. Given this comparative isolation, the formation of distinct races could easily follow in the course of time.

Those who demand a degree of intergradation between subspecies, finer than can be shown here at present, may prefer to recognize a *lafresnayii* group and a *mystacalis* group or to retain all of the forms as distinct species. If so, all of the species must then be placed in the same "formenkreis" or "species-complex"; their intimate relationship is unquestionable and is much closer than that which exists between the members of the group and any species outside of it. It is a fault of our present system of nomenclature (for which I am not prepared to suggest a new remedy) that affinities of this sort can not be expressed in the names applied to each unit of the group unless we regard the related forms as subspecies. It is surely no more of an error to call them subspecies than it is to apply different specific names which connote a greater degree of distinctness than actually exists. The recognition of "formenkreisen" is serviceable only to a limited degree; it permits the association of mutually representative geographical species under a single heading, but neither the binomials of the included species nor the trinomials of their respective subspecies indicate the close relationship that exists among all the members of the group. To be most serviceable, nomenclature must indicate existing relationship as well as distinctness. To call *mystacalis* a species apart from *lafresnayii* indicates its distinctness but does not show that it is more closely related to *lafresnayii* than is *aterrima* or even one of the *sittoides* group; to call it a race of *lafresnayii* indicates both its

affinity and its distinctness. As remarked by Stone (Auk, 16, p. 375, 1899), "a trinomial name carries to the average student just twice the information that a binomial would under these circumstances."

The argument against this is, of course, that complete intergradation has not been proved. However, while intergradation is the best proof of specific unity, it should not be made the sole criterion. Insular forms may have no connecting links and still be obviously races of the same species. Similarly two closely related mainland forms may have no perfectly intermediate individuals because of isolation and still be found to represent one species in two different parts of its range. To quote Chapman on the same subject (Auk, Vol. XLI, p. 18, 1924), "it seems perfectly logical to insist that if a systematist refuses to rank certain forms as subspecies until their intergradation is proven, he should also refuse to treat them as species until the fact of their nonintergradation is established. . . . Is it not more scientific to treat each case on its merits, basing our conclusions on due consideration of all the available pertinent evidence?"

With this in mind, after an examination of all the forms which come under the present discussion, I have no hesitation in concluding that the species *lafresnayii* embraces six subspecies ranging from *l. lafresnayii* in Venezuela to *l. mystacalis* in Bolivia. Their distribution is shown on the accompanying map (fig. 2).

Many thanks are due to Dr. Frank M. Chapman, American Museum of Natural History, New York, Mr. W. E. C. Todd, Carnegie Museum, Pittsburgh, Mr. Outram Bangs, Museum of Comparative Zoology, Cambridge, and Dr. Charles W. Richmond, U. S. National Museum, Washington, for the loan of comparative material used in the foregoing study; also to Dr. C. E. Hellmayr for giving access to the manuscript notes of the late Count Berlepsch, now in his possession, and for examining certain specimens in European museums for me.

SUMMARY.

1. Certain species of the genus *Diglossa* (Coerebidae), living in the highlands of north-western South America, may be arranged in

two distinct groups which show striking parallels of distribution and variation over a wide range.

2. Each group has a black form in the center of its range, a rufous-bellied, non-mustached form at the north and a rufous-bellied, rufous-mustached form at the south with additional variations in some places.

3. One of the mustached birds occurs without racial distinctions in two widely separated regions with all the suitable intervening country occupied by a black form of the same group. One of the isolated regions is divided by a deep valley which segregates two colonies of the mustached form; highlands which might connect the two ranges are occupied by the black form.

4. Within each group there is perfect geographic replacement of forms, no two of which occur together.

5. Intergradation is variously established or indicated among most of the forms of each group. Where it is only indicated there is usually a gap in the known distribution; the intervening region where intergradation probably occurs is not sufficiently explored to demonstrate the actual transition.

6. The relationships are best observed in a survey of the entire group since affinities are sometimes with a distant member of the group rather than with the adjacent form.

7. Throughout each group certain characters remain constant and establish the relationship in spite of superficial differences.

8. The evidence indicates that each of the two groups is a highly variable species of which the various forms are subspecies.

Specimens examined (in Field Museum of Natural History unless otherwise specified):

D. carbonaria carbonaria—Bolivia: Illimani, Iquico 1 ♂; Iquico 2 ♂ ♂¹; Cochabamba 1 ♂²; Incachaca, Cochabamba 4 ♂ ♂².

D. c. brunneiventris—Peru: La Quinoa 1 ♂ 1 ♀; mountains near Huánuco 6 ♂ ♂ 3 ♀ ♀; mountains near Pano 1 ♂; Cullcui, Marañon River 1 ♂ 1 ♀; mountains east of Balsas 1 ♂; Limbani, Carabaya 2 ♀ ♀; Ollantaytambo 1 ♀¹; Torontoy 1 ♂¹. Colombia: Paramillo 1 ♂ 2 ♀ ♀¹, 1 ♀.

D. c. aterrima—Peru: El Tambo, Piura 5 ♂ ♂². Ecuador: "Ecuador"

¹ Specimens in U. S. National Museum, Washington.

² Specimens in Carnegie Museum, Pittsburgh.

³ Specimens in American Museum of Natural History, New York.

- 1 ♂; Chillo 1 ♂¹; Taraguacocha 2 ♂ ♂²; El Paso, P. de Azuay 1 ♂²; Loja 1 ♂²; Yanacocha 1 ♀²; El Chiral 1 ♀²; Urbina, Mt. Chimborazo 1 ♀². Colombia: Laguneta 2 ♂ ♂²; Sta. Isabel 1 ♂²; Almaguer 1 ♂² 1 ♀².
- D. c. humeralis*—Colombia: La Pradera 1 ♂; Palo Hueco 1 ♂; Chipaque 1 ♂²; "Bogotá" 2 ♀ ♀²; Ramirez, Santander 3 ♂ ♂ 2 ♀ ♀²; La Pica, Santander 1 ♂². Venezuela: Páramo de Tamá 2 ♂ ♂ 1 ♀.
- D. c. gloriosa*—Venezuela: Mérida 1 ♂; Hechisera, Mérida 2 ♂ ♂; Culata 1 ♂; Santo Domingo 2 ♂ ♂¹; Teta de Niquitao 2 ♂ ♂².
- D. c. nocticolor*—Colombia: S. Lorenzo, Sta. Marta 2 ♂ ♂ 2 ♀ ♀².
- D. lafresnayii lafresnayii*—Colombia: "Bogotá" 3 ♂ ♂²; Almaguer 1 ♂². Venezuela: Mérida 1 ♂; Páramo de Tamá 1 ♂ 1 ♀.
- D. l. gloriosissima*—Colombia: Coast Range west of Popayán 1 ♂ 1 ♀², 1 ♂¹, 1 ♂; Paramillo 2 ♂ ♂¹, 1 ♂ 1 ♀².
- D. l. uncinata*—Peru: mountains east of Balsas 1 ♂ 1 ♀.
- D. l. pectoralis*—Peru: mountains near Huánuco 1 ♂ 2 ♀ ♀.
- D. l. albilinea*—Peru: Machu Picchu 3 ♂ ♂¹.
- D. l. mystacalis*—Bolivia 1? (Type)⁴.

¹Specimens in U. S. National Museum, Washington.

²Specimens in Carnegie Museum, Pittsburgh.

³Specimens in American Museum of Natural History, New York.

⁴Specimens in Museum of Comparative Zoology, Cambridge.

Field Museum of Natural History,
Chicago, Ill.

IMPRESSIONS OF ENGLISH BIRDS.

BY CHARLES W. TOWNSEND.¹

To spend the months of May and June in England when the birds are singing their best, and when bluebells, hawthorns and foxgloves come into bloom, has always been my ambition. We are all more or less familiar with English birds. It is part of a general education. Chaucer and Shakespeare, Burns and Shelley, Wordsworth and Tennyson contain passages about English birds which are household words.

The impression of one who is familiar with the calls and songs of American birds, when he hears for the first time the morning chorus of English birds, is one of confusion. Many of the calls and songs are similar to and yet different from those he has left behind. Some he can recognize at once. Thus the song of the Cuckoo, is, to turn things around, a perfect imitation of a Cuckoo clock. But when he sees the bird, he is struck with its resemblance to a Falcon with its long pointed wings and long tail, as well as its blue-gray color.

There are three English birds which are so abundant everywhere, even in gardens of large towns, and which are such persistent and good singers that every passer-by should know them. I refer to the Chaffinch, the Song Thrush and the Blackbird. All are confiding birds, and easily seen. The Chaffinch has a pink breast, a greenish brown back and conspicuous white patches on his wings. He is about the size of our Purple Finch and his song suggests the song of that bird, although he does not reach the heights of that cheerful and melodious singer. The song is generally short and lacking in variety. It ends abruptly with a *sweet-oh*, a *wee-chu* or the cheery English expression *right-oh*. He is commonly believed to say *ring, ring, rattle, chuck widow*, and even to command, *go quick, fetch me two bottles ginger beer*. Altogether he is a bird well worth knowing and his acquaintance is easily made.

The Song Thrush looks like our American Thrushes, especially the Olive-backed Thrush, but he is more closely allied to our

¹ Read before the Forty-fifth Stated Meeting of the American Ornithologists' Union, Washington, D. C., November 15, 1927

Robin. Like him he hops and runs along the lawn, appears to listen for a worm, pounces on one and deftly extracts it from its burrow. The song, however, resembles very closely those of our Brown Thrasher and Catbird. Like them it rejoices in repetitions of notes, many of which are delightfully clear and musical. "The throstle, with his note so true," as Shakespeare says, is a great improviser and is continually changing his theme. My note book contains a multitude of these, from which I select a few: *me-too, me-too; see-it-right, see-it-right; oh-pee-you, oh-pee-you; keep-her-to-it, keep-her-to-it.* Often, as with our birds, the Song Thrush happens on a theme that appears to please him and he repeats it a number of times. When several of these birds are singing at the same time, as is often the case, for they are surprisingly abundant, the air rings with their melody.

The Blackbird is deserving of more praise than is usually bestowed on him by the public, and I am inclined to think that the psychological effect of his somber plumage and his name is a handicap in his appreciation. After all there is a great deal in a name. It is a pity his old name, *merle*, is not preserved. He belongs to the same group as does our Robin, and, like him, has a yellow bill and similar lawn habits. His song is deep and melodious, full of sweet wild notes and flute-like tones and trills. It suggests at times the song of our Robin but is far more melodious. It also suggests the song of our Rose-breasted Grosbeak, but this again it surpasses in the purity and range of its notes.

"The merle's note

Melifluous, rich, deep-toned, fills all the vale,
And charms the ravish'd ear."

It is a satisfying song. It is not hurried; there is a serenity about it which adds greatly to its charm and places the singer, to my mind, in the front rank of English song-birds, perhaps superior to them all.

I know it is rank heresy to say so, but I prefer the song of the Blackbird to that of the Nightingale, and I have had many excellent opportunities to hear the latter bird at its best. From a traditional and literary aspect, and from the fact that the Nightingale sings at night more than any other bird, its song has a prestige that easily overcomes all competitors. One may add as an aside here

that the poets are not to be depended on for biological accuracy, as it is not a fact that the Nightingale sings only at night, but, even if it were the case, I should not agree with Portia who said that

"The nightingale, if she should sing by day,
When every goose is cackling, would be thought
No better a musician than the wren."

The song of the Nightingale is a beautiful song and a brilliant one, full of sweet trills, fluted notes and melodious phrases in surprising variety. The song is often ventriloquial in character, and the singer, who may be but a few yards overhead, concealed in the darkness and the thick foliage, often begins with low whistles, made as if by the drawing in of the breath, which appear to come from a distant tree, and follows them by loud clear notes, coming from near at hand. It always seems to me a cheerful and lively song, free from any strain of melancholy which is commonly attributed it by the poets. Thus Milton, in "Il Penseroso":—

"Sweet bird that shunns't the noise of folly
Most musical, most melancholy!"

and Shakespeare, who adopts the common explanation of the sadness, in "The Passionate Pilgrim" says:

"Every thing did banish moan,
Save the nightingale alone.
She, poor bird, as all forlorn,
Lean'd her breast up—till a thorn
And there sung the dolefull'st ditty."

The poet's Nightingale is always "she," owing probably to the fable that Philomela, daughter of Pandion, was changed into a Nightingale.

The bird seems to be filled to the brim with song which he is in such a hurry to pour forth that his theme lacks the fine and restful charm of serenity. This holy charm of serenity is, I think, best illustrated by our Hermit Thrush, whose incomparable song heard in the depths of the northern forests, thrills me as does no other song.

English Warblers are very different from our Wood Warblers, who make up in the brightness and variety of their plumage for the general poor quality of their songs. The English Warblers

are, for the most part, plainly apparelled, but many of them are fine singers. The Blackcap, the Garden Warbler and the Greater Whitethroat have brilliant songs, abounding in sweet musical notes. The Chiff-chaff, the Wood Warbler and the Willow Warbler are nearly as alike in plumage as three peas, but by their songs one may know them. The Chiff-chaff recites his name very plainly over and over again, the Wood Warbler, after a preliminary note or two, trills like our Chipping Sparrow, while the Willow Warbler has a charmingly tender song, somewhat on a minor key with a sweet diminuendo ending.

The early New England colonists were not ornithologists and they made many mistakes in bestowing familiar names on our birds. The most flagrant mistake was in calling a large Thrush with a red breast, a Robin. The English Robin Redbreast is endeared to everyone by its confiding ways, its trig form and red breast, and by the sweetness of its song. Like our familiar and beloved Song Sparrow, it may be heard singing in every month in the year. It hops along the path with elevated tail, courtesies a bit when embarrassed, yet does not hesitate to come within a foot or two of the quiet bird watcher. Its song has great variety and compass. Sweet and musical, at times it becomes almost as shrill and high pitched as an insect's voice. It trills and it whistles and breaks out most unexpectedly with great vehemence, as if the dam that held it back had suddenly given way. In these respects its song resembles those of the Nightingale and the Wren.

The song of the Wren is of course Wren-like and easily recognized. It suggests to me much of the quality but not the wildness and beauty of the song of the Winter Wren. Like the Winter Wren, it slips a cog as it were, in its song from time to time, but then goes on as before.

England is blest in the numbers of the Titmouse family. While we in New England are practically limited to one species, the Chickadee, there are half a dozen different kinds in England, each with its distinctive plumage and its strong Titmouse character of restless activity in exploring the trees for food, and its pleasing fearlessness in the presence of man. In plumage and manners, the Marsh Tit, which is a bird of gardens and orchards more than of marshes, resembles most closely our own familiar

bird. The rare and beautiful Bearded Tit, very different from the rest, it was my fortune to be shown, together with its nest and eggs, in the region of the Norfolk Broads.

Another group which is entirely lacking in the new world is the Wagtail group. The Pied Wagtail is widespread throughout England, and may easily be recognized by its long wagging tail, its pied coat of black and white and its graceful walk. On the roads it is the boldest of birds, and waits till the last minute before fleeing the on-rushing motor-car. The Grey Wagtail has a lovely blue-grey back and yellow under parts, while the Yellow Wagtail fully comes up to its name and is unmistakable.

The bird that "sings at heaven's gate" is a delightfully common bird in many parts of England, and one that joyfully gives forth its song without stint. The Skylark often begins to sing on the ground but the ardor of its passion soon bears it up on quivering wings still singing. At last it becomes but a speck in the sky, where it alternately flutters and sails into the wind, pouring forth its enraptured soul in torrents and continuing to do so as it floats slowly back to earth. It is a joyful and melodious song and is most inspiring, especially when several are rising and singing thus together, whether it be over bleak wind-swept moors, peaceful pastures or seashore marshes. With us the Horned Lark rises and sings in a similar manner and at times his song suggests that of his famous relative, but it is generally far inferior. It is, however, well worthy of attention.

The Sand Martin of England is our own Bank Swallow, the Martin, which looks like our Tree Swallow but has a white rump, is allied to the Eave Swallow, while the Swallow resembles our Barn Swallow so closely in plumage, voice and habits that it is welcomed by the American bird lover as an old friend.

One could mention many more English birds whose names are familiar in our ears. The Hedge Sparrow is a confiding little bird that looks for all the world like a commonplace Sparrow, but is, in reality, allied to the Warblers. It has a simple little song. The Yellow Hammer is a Finch with a yellow head, who is supposed to sing "a little piece of bread and no cheese." It is of course a totally different bird from our Flicker, which is sometimes called by that name.

It is surprising that two such large and edible birds as the Lapwing and the Ring Dove or Wood Pigeon should be so common, even abundant. In our country they would long ago have been decimated by the farmer boy's gun. The Lapwing, a large and striking bird in its black and white plumage, has for a long time been a sufferer from those who desired to eat its eggs, and it is possible that on this very account it has been preserved from slaughter. The Ring Dove is a fine bird to see, larger than the domestic Pigeon and one fond of grain fields. The interesting Stone Curlew or Norfolk Plover is, alas, rare. It has a plaintive whistle and a song that suggests the word *bob-o-link*. Many shore-birds are surprisingly common.

One is impressed in England with the rarity of Hawks, owing, as Hudson laments, to the Pheasant and the game-keeper, and, one might add, the egg-collector. Our first settlers went far astray in naming the Hawks. The English Sparrow Hawk is a close relative of our Sharp-shinned Hawk which well deserves the name of Sparrow Hawk. Both are Accipiters and pirates among small birds. Unfortunately the name Sparrow Hawk was bestowed on an American Falcon that should have been called a Kestrel as it is nearly the same as the English Kestrel, and like it, it is a beneficial bird, being addicted to a diet of beetles and mice and not of birds. It is a pity that our Pigeon Hawk was not called by the poetical name of Merlin, for it closely resembles the English bird of that name. It is said to be never too late to mend, but I am afraid these names are fixed and past repair.

I was lucky in seeing the Marsh and the Montague's Harrier, near relatives of our Marsh Hawk, also in seeing the Buzzard, a fine large Buteo.

The Herring Gull is common on the English coasts, and it adopts there a habit that I wish might be imparted to the American branch, of following the plough and picking up injurious worms and grubs from the freshly turned soil. In this it is joined by the Black-headed Gull, a very abundant bird, and it is common to see a solitary ploughman followed by a long trail of pure white birds. Interspersed with these are scores in sable plumage, the ever present Rook, a fairly close counterpart of our Crow, although the less common Carrion Crow is somewhat nearer. Curiously

enough, the call of the Black-headed Gull suggests at times a Crow's *caw*. The Hooded Crow, with its black hood above its grey mantle is not often seen in summer south of Scotland, while the Jackdaw, a small Crow of sable hue except for the light gray nape and side of the neck, haunts all ruins and rejoices in building its nest behind the stone effigies of saints on cathedrals. Its playful and rapid flight and querulous *ook* are characteristic. The Jay and the Magpie have only to be mentioned for they are easily recognized.

England is blessed in the numbers of semi-domesticated and wild Mute Swans that are to be seen on all the little rivers and ponds. A group of six or seven grey cygnets, assiduously cared for by stately parents in pure white, forms a charming picture. Another splendid and common water bird is the Sheldrake, a strikingly white and black and chestnut bird, nearly as large as a Goose. Here both sexes are brightly plumaged, and both together preside over the family of gray ducklings. They nest in rabbit burrows which abound in England.

The Common Heron of England is practically the same as our Great Blue Heron, while the Bittern is similar to ours but somewhat larger. I was fortunate in seeing the Bittern near Hickling Broad, for it has become a very rare bird in England, and I was fortunate in hearing its voice. This, unlike the voice of our bird, does not sound like a wooden pump in action, nor like the driving of a stake in a bog, but suggests the distant boom of a fog-horn. By the poets, the voice is always called a "booming," and it was supposed to be produced with the bill emersed in mud or water.

A Gallinule, which one may see even in St. James' Park in the heart of London, and which is common in all ponds, is the Moorhen. It may be known by its dark plumage and bright red bill. The Great-crested Grebe is another English water-bird well worth seeing.

It is certainly a great pleasure to become familiar with birds that are famous in tradition and literature, and it is also a great pleasure to return to our own birds. Both English and American birds have their charms.

Ipswich, Mass.

CHANGES IN THE STATUS OF CERTAIN BIRDS IN THE
NEW YORK CITY REGION.

BY LUDLOW GRISCOM.

To anyone who specializes in the birds of a limited area or "local region," the first stage almost invariably consists in intensive effort to find locally as many of the recorded species as possible—in the technical jargon of the day to acquire as large a local list as possible. This very natural interest tends to stress unduly the importance of very rare, casual or accidental visitants, but has its value in affording an incentive to steady field work, which might perhaps otherwise be lacking. After about twenty years the inevitable law of diminishing returns tends to remove this incentive. It is at this stage that the student may suddenly realize that he has seen very little of a certain species in recent years, or that he is finding some other species far more often than he used to. These changes in the status of various local birds are of far greater importance and interest than records of casual visitants. They cannot be authenticated without a background of many years' field experience, without carefully kept records of numbers seen and heard in all those years, and without availing oneself of the experience of as many others as possible, to eliminate the element of coincidence or luck. Some of the factors which must be discounted before definitely predicating the increase of any given species would seem to be as follows:

1. As the beginner acquires experience and field ability he constantly sees more species and greater numbers.
2. An increase of field activity must be discounted.
3. An increase in the total number of observers must be discounted.
4. More frequent visits to new localities, which afford more favorable habitats for a rare bird.
5. Temporary fluctuations in numbers as against a genuine increase.
6. Bias in favor of personal experience, at variance with that of more active observers.

7. Another point of psychology affects commoner species, in which the observer is less interested, and to which he pays less attention. A slight increase or decrease is not noted until after a considerable lapse of time.

8. Absence of definite information as to the status of a bird in the past.

Assuming, however, that every possible factor has been allowed for, there is no greater satisfaction in local bird-study than seeing some rare or partly extirpated species return in increasing numbers to its former haunts or to find some other bird, formerly regarded as casual, establish itself as a regular member of the avifauna. This has been the happy fortune of bird-lovers in the New York City Region. I positively rub my eyes with astonishment as I look back over my many years of field experience in this region and realize that since 1912 fifty species have completely altered their status, and that more than fifty percent of this change has taken place *in the last five years*, since the data for my 'Handbook' of the birds of this region were compiled.

Naturally no inquiry such as this would be complete without some attempt at defining the causes for so interesting a change. It is just here that we approach a problem of far greater scope than any local region, as all available external as well as internal evidence must be consulted, and our inquiry gradually broadens over the whole eastern United States and Canada. It is for this reason that this article is submitted to 'The Auk.' The reason why the Egret is now a regular summer visitor is in part because it has increased on its breeding grounds in the Southern States, and the reason why the Tennessee Warbler has ceased to be excessively rare is in part because of its increase as a summer resident in the northeastern part of its breeding range in the Maritime Provinces of Canada. It is apparent that local protection is of far less importance than general protection. No matter how attractive the Newark Meadows may be for Golden Plover, there would be none there unless there were Plover to come, and there could be no real increase in Plover unless they had increased in the "somewhere" from which they do come.

1. The international protection now accorded all migratory birds is undoubtedly the factor of primary importance, explaining the increase in Gulls, Terns, Anseres and Limicolae.

2. The special protection accorded certain species of these groups on their breeding grounds in federal or Audubon reservations.

3. The abolition of the millinery trade in native birds, and the illegality of possessing native song-birds as pets.

4. The adaptation on the part of certain species to an environment more or less changed for the worse, such as the Pileated Woodpecker.

5. Local extension of breeding range within the region, without any factors of adaptation or protection.

6. The increase of certain transients is due to an extension of their breeding range outside the region, without the factor of protection.

7. The increase of certain transients is due to a general increase of the species throughout its range, in spite of the fact that local conditions suited to its requirements may have steadily deteriorated. Thus certain shore-birds have markedly increased on the beaches near the City, in spite of the great deterioration of these beaches. It is commonly held that the increase of a transient locally is due to the development or extension of conditions suited to its requirements. This explanation does not apply to any bird in this region, so far as I know.

8. Change in migration route without any definitely assignable cause. (Evening Grosbeak; and see Ring-necked Duck beyond.)

The following list of species merely aims to summarize the change in status of each one of them, and when possible, a probable cause is suggested. Detailed records are not given where they have already been published either in 'The Auk,' 'Bird-Lore,' or 'The Proceedings' of the Linnaean Society of New York. I am greatly indebted to all the gentlemen mentioned by name for permission to use their records. It is hoped that this paper will prove of value and promote discussion or the publication of similar changes in other areas. The bird-life of adjoining areas may reasonably expect to benefit in time from some of the changes here recorded, if indeed it has not already done so. Similarly the New York City Region has already benefitted by the discovery of the Cerulean Warbler as a nesting species in Dutchess County, N. Y., as related beyond.

Finally another reason for putting these facts on record at the present time is as an act of justice. The increase of most of the species in the list below is fundamentally due to the men and organizations who are responsible for the aroused interest in conserving our birds, and for the legislation which has effectively protected them. It is the irony of fate that just at the time when their labors and vision are beginning to bear very definite fruit, they are being attacked, largely by perfectly sincere people whose field experience is so recent or so local that their relative incompetence and bias is patent. It is high time, therefore, that those who have definite and scientifically determined evidence of the effects of the conservation work in this country of the last fifty years came forward with that evidence. The great majority of them will have to be students of birds, not conservationists, and, like the writer, they may have no connection whatever with any organization or party in American conservation, nor any direct personal interest in it. I have already suggested certain requirements which would seem to be prerequisite for predicating the increase or decrease of any bird even locally. They are relatively severe, and it would seem to be apparent that only a specialist in bird-study could possibly fulfill them. In the last analysis definite information on the relative increase or decrease of any North American bird will rest, not on the *ex cathedra* statements of "lovers of wild life," but on the field work of the little army of field ornithologists in a multitude of "local regions," concerned solely with recording what they see. To those who would claim that this article is a biased and one-sided picture in that nothing is said about decreasing birds in the New York City Region, I would state that this phase of the question was fully treated in a special chapter of my 'Handbook,' and that no new evidence has accumulated since.

An abstract of this paper was presented at the 1925 meeting of the A. O. U. in New York City. Its publication was deferred on the chance that confirmatory data would become available, and this delay would seem to have been worthwhile.

Larus hyperboreus. GLAUCOUS GULL.—Now an uncommon but regular winter visitor to the salt waters of the region, no longer rare on the Sound, and frequently remaining until late May.

Larus leucopterus. ICELAND GULL.—Now a regular winter visitant, sometimes actually common, distinctly outnumbering the Glaucous Gull. It is also much more frequent than that species away from the ocean, and is frequently noticed in the Harbor, the Hudson River up to Dyckman Street and Newark Bay. Both these Gulls now occur almost every winter as far south as Barnegat Bay, N. J. Not only have these two Gulls greatly increased in the last twenty years, but half this increase has taken place in the past five years. The Iceland Gull was formerly much the rarer of the two, but is now decidedly the commoner and more generally distributed.

Larus atricilla. LAUGHING GULL.—The rapid increase of this species has been positively astounding in the last six years, and has been correlated with marked changes in habits and migration. One hundred years ago it was a common summer resident on the south shore of Long Island, last nesting in 1888. Twenty years ago it was a very rare spring transient, but regular in fall from July to early September in Long Island waters. It is now a common spring transient, and exceedingly abundant in fall, remaining in numbers until the middle of November, and stragglers lingering until Christmas. It is a common Harbor bird, swarming up the River as far as Haverstraw Bay, and even ascending as far as Dutchess County. In the Sound it is nothing to see 1000-1500 in the course of a day. Oddly enough it is now less common on the south shore of Long Island than anywhere else in the region.

Sterna caspia. CASPIAN TERN.—The discovery of a flourishing colony of this splendid Tern in the Gulf of St. Lawrence, and the protection afforded it, undoubtedly account for its sudden reappearance as a transient in this region. In the last few years it has been noted every fall on Barnegat Bay (Urner and others). On May 30, 1925, one was seen flying east at Jones Beach, L. I. (Eaton, Johnson and Griscom), officially the second spring record for Long Island. In the fall of 1926 there was a marked flight of this species in August and early September along the south shore of Long Island. The number of individuals seen exceeded the sum total of all the previous records. No less than fourteen were seen on August 16 at Jones Beach (R. Friedmann), I saw three at the same place on September 4, and there were other records from Oak Island and Long Beach, L. I., and Barnegat Bay, N. J.

Sterna hirundo. COMMON TERN.—Now a common spring and abundant fall transient, remaining until early November. It is now of regular occurrence on the Sound, the Hudson River and Newark Bay. The breeding colony near Orient has grown to 5000 pairs (Latham and Leroy Wilcox).

Sterna forsteri. FORSTER'S TERN.—This species was put among the extinct and extirpated species in my 'Handbook,' as there were only five records for Long Island, and none for the preceding forty years. The statement that it is indistinguishable in life from the Common Tern in

the fall proves to be entirely incorrect, and will be discussed in another connection. With the general increase in Terns, thanks to protection, this species has now "come back," and must be classed as a late summer and fall visitor from the south. Mr. J. T. Nichols deserves the credit for working out the identification of this species in life. He positively identified one among Common Terns on the beach at Mastic, L. I., on September 3, 1923, saw another there on August 23, 1924, and three on August 23, 1925. By this time every active member of the Linnaean Society was on the lookout for it. Dr. W. T. Helmuth, Jr. independently detected it at Easthampton, L. I., and collected a specimen, which I have examined. Mr. Chas. A. Urner, fortified by careful study of the bird on its breeding grounds at Cobbs Island, Va., with me in 1924, discovered its presence early in August at both Barnegat Bay and Newark Bay, N. J., and it became common at both localities. Almost everybody went to one place or the other to see it, and promptly discovered its presence in their own locality. On Newark Bay it was first noted on August 9, last October 25, a maximum of 62 on September 19 and a specimen was collected, now in the American Museum. At Point Pleasant the maximum was 75 on August 30, and a specimen was collected near Manasquan Inlet on August 29. The species was also recorded from Dyker Heights, Brooklyn, Staten Island, and various localities on the Sound in Westchester County. A straggler at Manhattan Beach on December 26 (Hix and Nathan) ended this remarkable flight. In 1926 no examples were detected in this region except on Barnegat Bay (Urner). At the present writing (August 10, 1927) the first reports of the bird locally are beginning to come in. It is a reasonable inference that like the Egret a few birds occur every year, and that there are occasional flights, as in 1925, when far greater numbers are present. It is, however, not nearly so conspicuous as the Egret which can scarcely be overlooked, while the Forster's Tern is very easily overlooked, so that in poor years there may be no records at all.

***Sterna dougalli*.** ROSEATE TERN.—This species has steadily increased, and is now a regular transient even at the western end of Long Island, sometimes positively common in fall. I have seen as many as forty in one day at Jones Beach and fifty at Montauk Point.

***Sterna antillarum*.** LEAST TERN.—This Tern has also become a regular transient along the whole south shore of Long Island in the past five years. While its numbers have never been as large as those of the Roseate Tern, it has reestablished itself as a summer resident, after an interval of forty-four years. In 1926 four pairs nested at Long Beach (discovered independently by several observers), and this year there were eight pairs in two separate colonies.

***Chlidonias nigra surinamensis*.** BLACK TERN.—Formerly casual in spring, now recorded annually in spring as well as in fall. Inland records have also multiplied in the past few years.

***Lophodytes cucullatus*.** HOODED MERGANSER.—Listed as a very

rare transient in my 'Handbook.' Now regular in spring and fall, with a scattering of early winter records every year. In the spring of 1926, there were numerous records from February 16 (L. N. Nichols) to May 16 at Boonton, N. J. (Carter).

Chaulelasmus streperus. GADWALL.—Listed as casual in my 'Handbook,' and recorded from Long Island only. Now a rare transient, but recorded in the region every year. Recorded almost every spring and fall on the Hudson in Dutchess County (Crosby and others), where it was previously unknown. On August 26, 1923, a drake in eclipse plumage was found on the "Pond" at Jones Beach with other Anatinae, and on September 2, two were present (Griscom and several others). This shows that the Gadwall has the same early migration of the Baldpate, Teal and Pintail. On September 27, 1925, I saw a drake at Overpeck Creek with other Ducks, the first record for northern New Jersey, and in April of this year Mr. Urner found a drake in the Newark Meadows.

Nettion carolinense. GREEN-WINGED TEAL.—Ten years ago almost unknown in this region near the city. Now a common transient at all favorable places throughout, remaining from the middle of March into early May, the number of individuals steadily increasing annually.

Querquedula discors. BLUE-WINGED TEAL.—In my 'Handbook' I was unable to report the slightest sign of any increase in this rare species. This situation has now completely altered. It is definitely common on Long Island, and Mr. Roy Latham secured breeding evidence near Orient, Long Island (Auk, 1924, p. 338). In spring it now lingers later (Jones Beach, May 30, 1926, Eaton and Friedmann), and arrives regularly in early August, or even in late July (Jones Beach, July 24, 1927, Griscom and Watson). In favorable spots along the Hudson River it is now a common transient, and it occurs regularly in a few places in northern New Jersey. In all inland localities, however, the number of individuals is very much less than for the Green-winged Teal.

Spatula clypeata. SHOVELLER.—Next to the Ring-necked Duck, the sudden change in status of the Shoveller is the most remarkable of any of the Ducks. It is now a regular transient, but is more of a fresh water and marsh Duck than any other, and consequently is reported in the Newark Meadows, the Overpeck Creek marshes and the coves of the Hudson River, and practically nowhere else. In good duck years, as in the springs of 1925 and 1926, it could almost be called common, remaining from late March until early May. The height of the migration is late, not until after April 15, and on occasion in a list of Ducks of fifteen species, it has been third or fourth in point of numbers. On the basis of the records of the past few years it is as common a Duck inland as the Blue-winged Teal, and should be transferred to the class of regular transients.

Marila valisineria. CANVASBACK.—Now a regular transient to Newark Bay, Overpeck Creek and favorable places on the Hudson River,

instead of very rare or casual. Also this species has suddenly become a common winter visitor to certain sections of the Sound, and flocks exceeding one thousand birds can be seen off Hunt's Point in February.

Marila collaris. RING-NECKED DUCK.—Listed as casual in my 'Hand-book,' with only three known records from Long Island. Since 1922 a most dramatic change has taken place, and this species must be classed as a regular transient, occasionally lingering into the winter. There is not space to cite all the records here, totalling over fifty, as these can be found in the 'Proceedings' of the Linnaean Society and the 'Bird-Lore' season reports. Suffice it here to say that like the Teal and Shoveller it is an inland species primarily, and occurs on the reservoirs in northern New Jersey and Westchester County, N. Y., the Overpeck Marshes and the coves of the Hudson River. I have no evidence of any similar increase on Long Island waters. In the spring the species is present from the end of March to the middle of April, and in the fall from November to January.

Casmerodius egretta. AMERICAN EGRET.—Thanks to adequate protection in the south this lovely bird is now a regular summer visitor to the coastal marshes, and in years when there is a marked flight of southern Herons, as in 1925, it is recorded in numbers throughout the region. While much more irregular inland, it is no longer casual, and indeed occurs now away from the coast far more frequently than it used to occur on the coast ten years ago. In the past two years it has been recorded in spring from Barnegat Bay, N. J. (Urner).

Florida caerulea. LITTLE BLUE HERON.—Even this species has markedly increased, and is now a regular summer visitor to our coastal marshes, often locally common in flocks of six to twenty. Inland it is rarer than the Egret, and there are few or no records except in flight years. Formerly very rare in spring, it is now recorded annually in the Region at this season.

Nyctanassa violacea. YELLOW-CROWNED NIGHT HERON.—Formerly regarded as accidental or casual, now visiting this Region every year as a spring and summer visitor. While in part the increase of records may be due to the fact that numerous students have now learned to differentiate the two Night Herons in immature plumage, this does not account for the records of the unmistakable adults. The recent discovery that this species now nests in southern New Jersey fully explains its change in status locally. Spring records of adults are Baldwin, L. I., May 3, 1925, (K. Baasch) and Central Park, New York City, April 23, 1926 (over thirty observers). In the summer of 1925 there were several records from Barnegat Bay and Newark Bay, N. J. (Urner) and many others. This year four adults were found at Southold, L. I., on July 17 and remained at least until Aug. 1 (Mrs. W. F. Atkinson), and Urner and Eaton found the first bird at Barnegat Bay on Aug. 6.

Limosa haemastica. HUDSONIAN GODWIT.—A few years ago this splendid shore-bird was regarded by many as perhaps on the verge of

extinction. It would seem to have been saved at the eleventh hour, and reports from various parts of North America show conclusively that it is increasing. It has occurred regularly in this region the past three years. Two records are particularly notable. An adult in breeding plumage, May 23, 1925, at Long Beach (J. Kuerzi and others) is the only spring record for the region. Mr. Urner observed an adult in breeding plumage on July 3, 1925, on Newark Bay, which is a much earlier date than any of the old records. This year in mid-July there were a few Godwits in a large flight of Curlew at Barnegat Bay (Urner).

Catoptrophorus semipalmatus. WILLET.—This species is now reported every spring on the south shore of Long Island, and the fall records are steadily increasing in number, while the number of individuals is also increasing. It has ceased to be a rare shore-bird, and is noted occasionally on the Sound and on Staten Island.

Numenius americanus. LONG-BILLED CURLEW.—Listed among the extirpated species in my 'Handbook,' it should be transferred to the list of casual visitants. Dr. Helmuth has already recorded one seen at Mecox Bay, Long Island, Aug. 26, 1910, and another Aug. 24, 1923 (Auk, 1924, p. 352). On July 10, 1927, Mr. F. E. Watson, one of our most active and experienced local students, observed a Long-billed Curlew at Quogue, L. I., for two and a half hours, writing a most careful account of his observation in his note-book at the time, and even taking the precaution to measure the bird's tracks after it had flown away!

Numenius hudsonicus. HUDSONIAN CURLEW.—Another species which has shown a most marked increase. Every fall since 1923 the July "flight" of the Curlew has been increasingly heavy, and there are now days when it is locally positively abundant. It can now be seen every spring and fall near the City, and occurs rarely along the Sound.

Charadrius dominicus. GOLDEN PLOVER.—Another case of a fine species apparently saved at the eleventh hour. Mr. J. T. Nichols has already discussed the "come-back" of the Golden Plover on several occasions in recent 'Bird-Lore' season reports. Suffice it here to say that it now occurs every fall in this region in increasing numbers. In 1924 Dr. Helmuth saw as many as fifty in a flock at Easthampton. In 1926 the species was present for over six weeks on the Newark Meadows, a maximum of 36 birds (Urner). Single birds now drop in to more unfavorable spots, such as Dyker Heights Park, Brooklyn and along the Sound in Westchester County, N. Y.

Phasianus colchicus × **torquatus.** PHEASANT.—The Pheasant prospered marvellously in this region in the past few years, and is now a well established member of our avifauna. It is now a common resident throughout northern New Jersey and Westchester County, N. Y.

Picoides arcticus. ARCTIC THREE-TOED WOODPECKER.—This Woodpecker can no longer be regarded as an accidental visitant, but must be transferred to the group of irregular winter visitants. Even this change

is conservative, as the bird has occurred in this Region every year but one since the remarkable flight of 1923. The majority of the records come from the hemlock grove in the Bronx Botanical Garden, where individuals have remained several weeks or more at a time. Others, however, have been reported from Montclair and Englewood, N. J., West Point, Mt. Kisco and New Rochelle, N. Y. (See Abstract Proc. Linnaean Society, N. Y., Nos. 37 and 38, 1927). I am at a loss for an explanation in this case. The Bronx Botanical Garden has been worked by numerous observers since 1908, and it is out of the question to allege that the increase in records merely reflects an increase in observers. There would seem to be, however, an increase of winter records in New England, and perhaps the species is less sedentary than it was formerly supposed to be.

***Phlœotomus pileatus abieticola*.** NORTHERN PILEATED WOODPECKER.—The general "come-back" of this fine Woodpecker in many parts of the northeast where it was formerly extirpated is now well known. Known from only two localities in northern New Jersey in 1922, it has now been recorded from numerous spots in the wilder parts of Warren, Sussex, and Bergen Counties. There is also some evidence of winter wandering, as the bird has been seen, or traces of its work found, near Blairstown, Boonton and the hills back of Morristown. In certain localities like the Wawayanda Plateau it could almost be called common. I incline to the view that the increase in this Woodpecker is not so much due to conservation, as to its adaptation to less primeval conditions. The generation that regarded this species as a game-bird died off in this Region years before it returned.

***Dolichonyx oryzivorus*.** BOBOLINK.—Has shown distinct signs of increase as a summer resident in the suburban area near New York in the last few years. Mr. Crosby reports a notable increase in Dutchess County.

***Vireosylva philadelphia*.** PHILADELPHIA VIREO.—In 'The Auk' for April 1924, p. 347, I recorded four observations of this species in the fall of 1923, an unprecedented occurrence. In the past few years other fall records have come to hand. It is now time to put on record data regarding its presence in spring. In the first place the recently published 'Abstract of the Proceedings of the Linnaean Society of New York,' Nos. 37 and 38, p. 105, gives two recent spring records for the Bronx, which Mr. Kuerzi, after thorough inquiry, regarded as reliable. The spring of 1927 will long live in the annals of Central Park ornithology as a notable one for the variety and abundance of transients. A great wave on May 11 brought 66 species to the Ramble. In the late afternoon I paid the Park a second visit, and came upon a group of seven beginners in bird study staring into a hawthorn bush. They asked me to identify a bird which was feeding in it, and I exclaimed with surprise at seeing a Philadelphia Vireo about six feet above the ground some fifteen feet away. It was obvious that some of these people had never even heard of the bird, but a pleased smile overspread the countenance of one man, who flourished

a Reed's 'Bird Guide' in my face, which was open at the colored picture of this species. He had been studying the bird carefully for some time and had obviously identified it correctly. I give this incident in detail, as illustrating the possible disadvantages of the ordinary rules of conservatism. All the more experienced observers had "done" the Ramble in the morning without finding one of the most notable birds of the day. It must be admitted that if any one of the seven original discoverers of this Philadelphia Vireo had reported it on uncorroborated testimony, the record would never have been given definite credence. I devoted the rest of the afternoon to rounding up four other bird-students, and a half hour later we had another ideal observation.

There was another considerable flight on May 18. Entering the Ramble about nine A.M. almost the first bird I saw was a Philadelphia Vireo feeding in a small wild cherry. Five minutes were devoted to making as certain as humanly possible that my identification was correct, when I rushed off to secure corroboration from as many witnesses as possible. Fortunately I found that keen and competent student, Mr. Frank E. Watson, lurking in a deep thicket, nursing an illusion that he had glimpsed a Mourning Warbler. I had no difficulty in persuading him to forget it temporarily, and we returned with Mrs. Davis to the wild cherry tree. The bird was, of course, not there, but after an anxious fifteen minutes quartering of the vicinity, it was finally relocated and studied at leisure. Later on this individual was seen by several other people, including Mrs. Chas. N. Edge and Mrs. Clarkson Runyon, Jr.

One would have supposed that two records of the Philadelphia Vireo would have sufficed for one spring, but on June 1, a day when there was a small late flight, Mr. Charles Johnston found another individual in the Ramble in the early morning. This careful and conservative observer studied his example with great care for some time, and was familiar with this species in life, as already recorded by me in 'The Auk' note referred to above. I have not the slightest doubt that his identification was absolutely correct.

Mr. Arthur Janes also has kindly sent me a detailed account of a bird observed on May 14 at Scarsdale, which can only have been this species.

Published data from various sources in recent years seem to indicate that the Philadelphia Vireo has increased as a summer resident in the northeastern parts of its range in the Maritime Provinces of Canada, together with certain of the rarer Warblers. Suffice it here to say that I think the evidence presented warrants the statement that the Philadelphia Vireo is becoming a regular transient in this region, and can no longer be regarded as excessively rare. The increase in records in recent years cannot be ascribed solely to the admitted increase in competent observers.

Vireosylva gilva. WARBLING VIREO.—This species, like the Bobolink, has shown distinct signs of a "come-back" in the suburban area, and has

ceased to be a rare migrant in Central Park. It is now recorded there every spring, and each year the number of individuals markedly increases.

***Lanivireo flavifrons*.** YELLOW-THROATED VIREO.—The rapid decrease of this Vireo, which I recorded in my 'Handbook,' has happily ceased, and like the last species it has increased, if anything, to an even more marked extent.

***Protonotaria citrea*.** PROTHONOTARY WARBLER.—This beautiful Warbler instead of a casual visitant is now perhaps a regular summer resident in the swamps along the Passaic River near Caldwell, N. J. (See Auk, 1925, p. 138.) The exact site was fortunately near a bridge-head across the river, readily accessible. The birds did not return next year (1925), but Mr. J. L. Edwards observed a male in early July a mile or two further down the river, from a canoe, in an area of deep and almost inaccessible swamp land. On May 15, 1927, Messrs. Carter and Watson found a female on the western edge of this same area near what are known as the Troy Meadows. This perhaps accounts for the recent spring records near the City. There have been three in the Bronx Region and one in Central Park.

***Vermivora pinus*.** BLUE-WINGED WARBLER.—This Warbler is markedly extending its range northward in northern New Jersey and in Dutchess County, penetrating the breeding range of the Golden-winged Warbler.

***Vermivora celata*.** ORANGE-CROWNED WARBLER.—This Warbler is changing its status in this region exactly as the Cape May and Tennessee Warblers did some ten or more years ago. From an excessively rare bird it now bids fair to become a regular spring and fall transient. There were more records in 1926 than in all previous years combined. The following records support this contention, and are believed to be as reliable as sight records can be. 1924: Central Park, Sept. 19, Griscom and Watson; 2 in a garden at Long Beach, L. I., Oct. 13, Watson. 1925: Pine Plains, Dutchess County, singing male May 10, Baker, Crosby, Griscom, specimen collected; Dutchess County, Oct. 15, Crosby; Grassy Sprain, N. Y., Oct. 18, J. Kuerzi. 1926: Inwood, N. Y. C., Jan. 20 (Allan Cruikshank); adult male Central Park, May 13, Griscom and C. Johnston; Bronx Park, May 13, Kuerzi; singing male Croton Point, Westchester County, N. Y., May 15, Pangburn; Elizabeth, N. J., May 16, Urner; Dyker Heights, Brooklyn, May 19, Hix; Point Pleasant, N. J., Dec. 5, Watson. 1927: singing male Pine Plains, Dutchess County, N. Y., May 6, Allan Frost; singing male Rhinebeck, Dutchess County, May 8, Griscom; female Elizabeth, N. J., May 19, Griscom and Urner.

***Dendroica cerulea*.** CERULEAN WARBLER.—In 1922 after the discovery of the nesting of this species in Dutchess County, N. Y., I ventured to suggest that should it increase there locally, it might possibly be found near New York more frequently on migration. The Cerulean Warbler has steadily increased as a summer resident in Dutchess County and has now ceased to be a bird of any special note there. In accordance with

my prediction the species has occurred on the following occasions nearer the city on migration: Central Park, a female, Sept. 15, 1923, Rudyerd Boulton (Auk, 1924, p. 348); Van Cortlandt Park, singing male, May 27, 1926 (Allan Cruickshank); two singing males in Central Park, May 11, 1927, Griscom and over twenty other people; singing male, June 5, 1927, in the woods near Wyanokie, Bergen County, N. J. (T. D. Carter). Most unfortunately this locality could not be revisited to determine the possible presence of a nesting pair. I should not be at all surprised if this species were found nesting in northern New Jersey in the next few years.

***Dendroica dominica*.** YELLOW-THROATED WARBLER.—No less than three spring records for our rarest Warbler have been made in the past three years, as follows: Elizabeth, N. J., May 15, 1925, Urner; Quaker Ridge, Westchester Co., N. Y., May 18-21, 1925, R. R. Coles (Auk, 1925, p. 591); Central Park, N. Y. C., April 29-May 1, 1926 (at least fifty observers). These records are undoubtedly connected with the regular occurrence of this species in recent years in spring and summer in southern New Jersey.

In addition to the species discussed above the increase in recent years of the following additional species was discussed in my 'Handbook': Black-backed Gull, Herring Gull, Baldpate, Pintail, Dowitcher, Knot, Pectoral Sandpiper, Black-bellied Plover, Piping Plover, Turnstone, Evening Grosbeak, Tennessee Warbler, Cape May Warbler, and Bay-breasted Warbler. These birds are now all common or abundant, whether as winter visitants, transients, or summer residents, the only exception being the Evening Grosbeak, which is irregular instead of accidental. This makes a grand total of 50 species, truly a remarkable record for so short a time. With the exception of the smaller oscine birds, conservation of one kind or another is fundamentally responsible for this increase, and the field students of the New York City Region owe a debt of gratitude to the men and organizations who have advocated the necessary laws and regulations, and so successfully moulded public opinion in the last forty years.

*Museum Comp. Zool.,
Cambridge, Mass.*

THE NESTING OF THE GREAT HORNED OWL.

BY L. L. GARDNER.

Plates III-V.

ON March 19, 1926, the nest of a Great Horned Owl (*Bubo virginianus pallescens?*) was found in one of the thickly wooded canyons on the military reservation, Fort Riley, Kansas, which presented an unusual opportunity for intimate study of the nest life and growth of the young from very early in their life history until the leaving of the nest.

The terrain consists of rolling grass-covered hills cut by rather precipitous tree-grown gullies with rocky rims and low underbrush. The particular canyon in question is in an isolated area at the western boundary of the reservation four and one-half miles from the buildings of the military post, two miles or more from the nearest farm house and about the same distance from the Republican and Kansas Rivers. It is shaped like the letter Y with east and west branches, is thickly tree-grown, with elms, cottonwoods, hickory, locusts, and small oaks and considerable tangled underbrush. A small intermittent flow is found along the stream bed. The canyon had the added advantage of being behind the rifle range, ricochet bullets from the low intervening ridge occasionally passing over with menacing whistle and keeping unwelcome meddlers away.

The nest was that of a large Hawk, one of a group of three, in the east fork. It was situated at the edge of the woods close to the limestone outcrop that forms a ledge of rim rock around each canyon. From this ledge the young could easily be seen in the nest. It was built in the highest fork of a hickory tree, 43 feet from the ground and, during the winter season, due to the size and exposed position, was very conspicuous.

From April 7 to May 15, practically without break, daily observations were made, either early morning or late afternoon, the ascent to the nest being made with pole climbers, and the evolution of the young watched with keen interest.

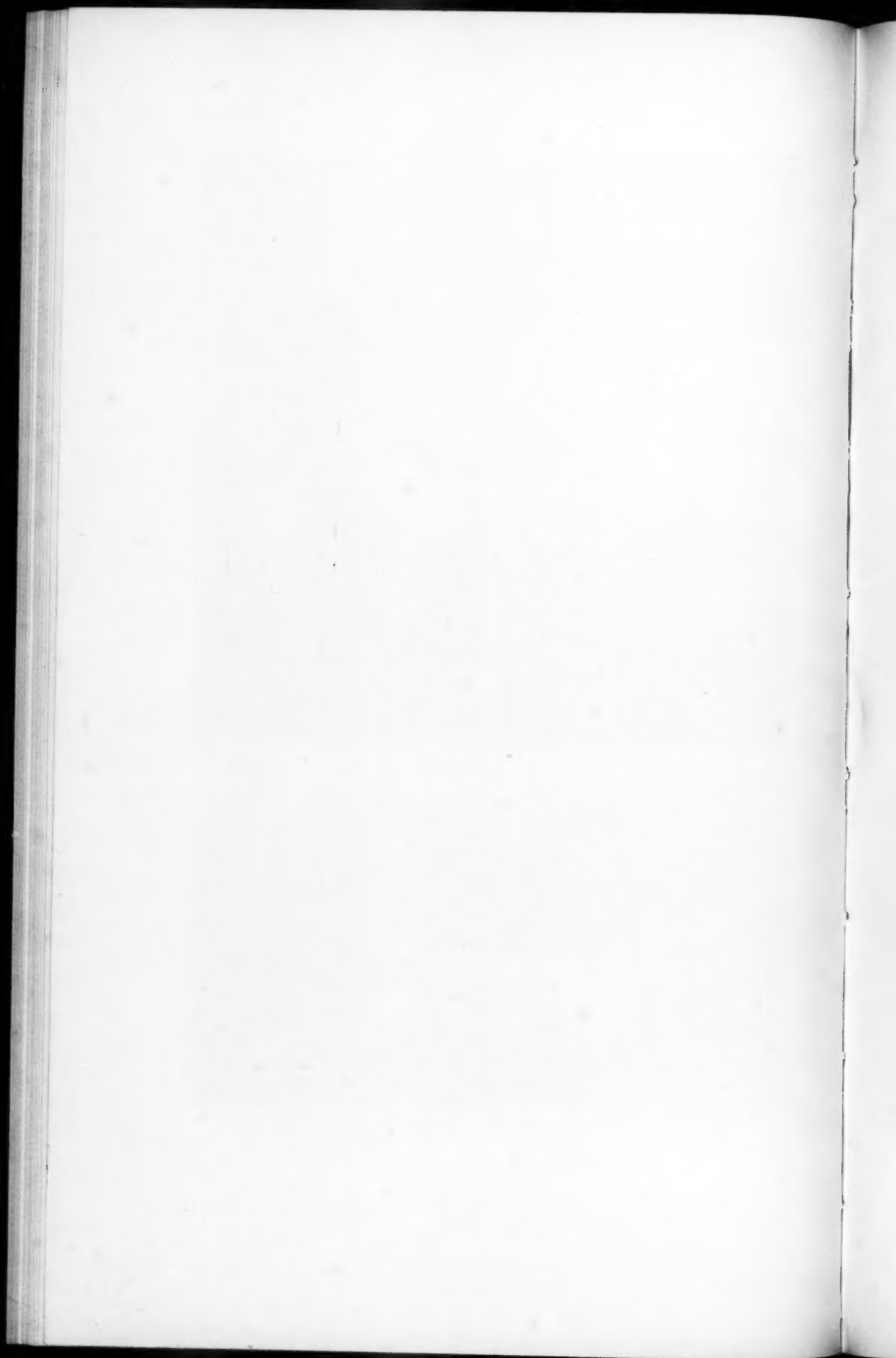
On May 2, a catastrophe that threatened to be of major pro-

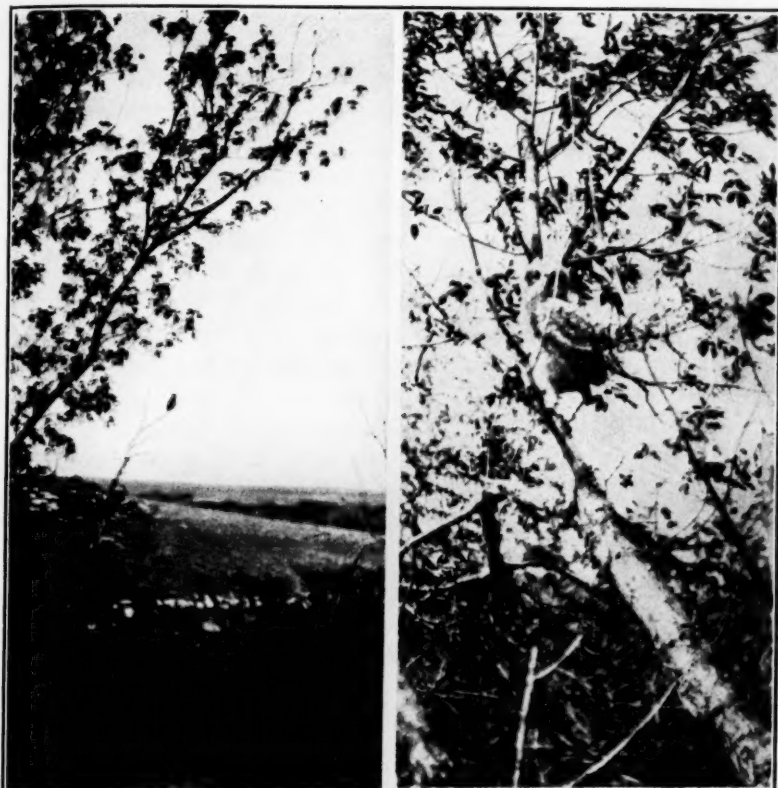


GREAT HORNED OWL.

1. THE ORIGINAL NEST.
2. THE RECONSTRUCTED NEST, WITH BIRD VISIBLE.
3. YOUNG, THREE AND A HALF AND FOUR AND A HALF WEEKS OLD. PRAIRIE CHICKEN AT RIGHT.



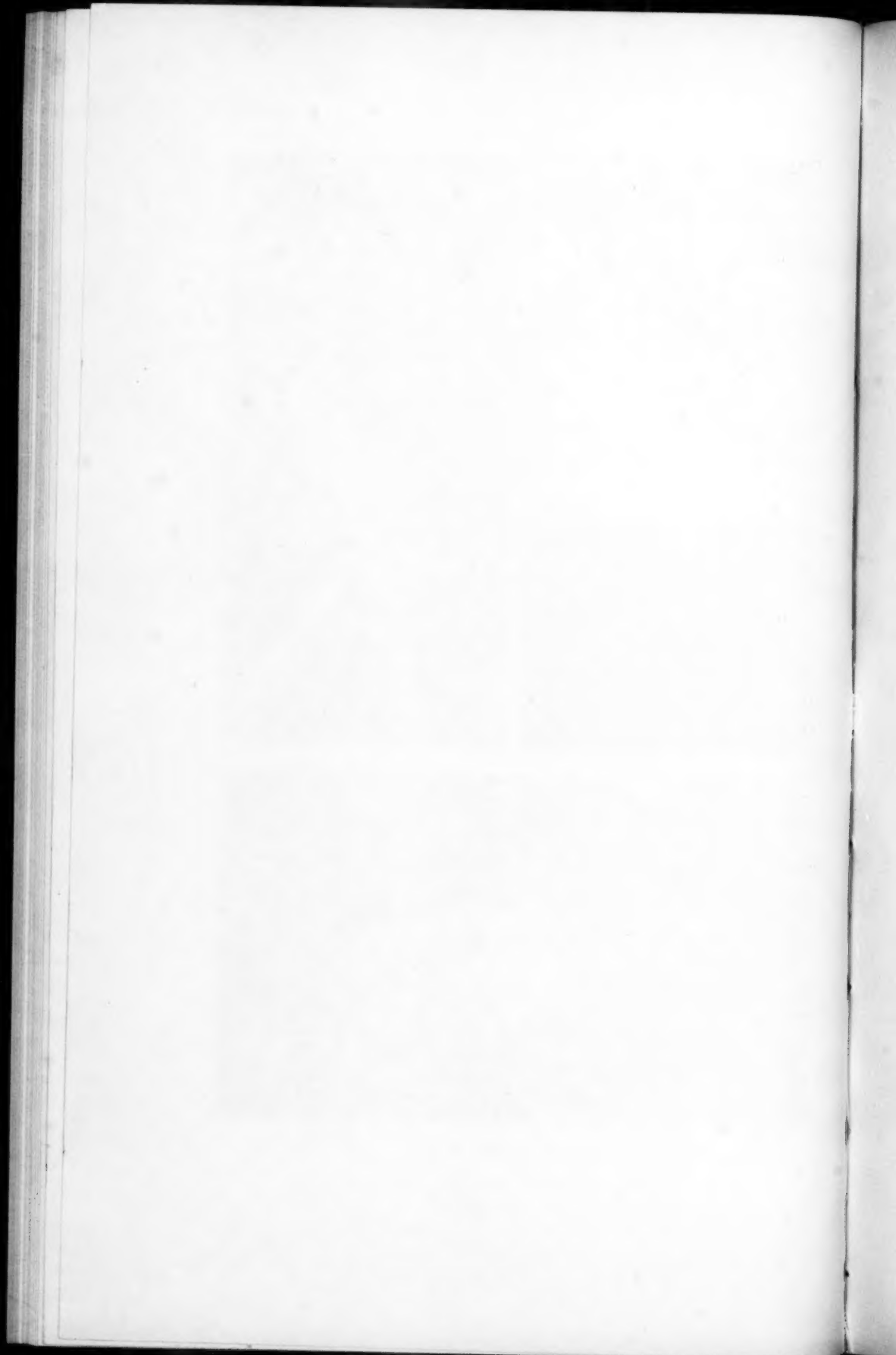




GREAT HORNED OWL.

1. FAVORITE OBSERVATION PERCH OF ADULT.
2. PREPARED FOR FIRST FLIGHT.
3. YOUNG, SIX AND SEVEN WEEKS OLD.





portions overwhelmed the family. Two soldiers casually riding by on horseback along the rim rock espied the young, now grown large and bold and sitting up prominently in the nest. One of them ascended the tree, threw one of the Owls to the ground, tore the nest out of the tree and carried the other fledgling down clinging to his coat sleeve. Having photographed the pair they were about to dispatch them,¹ when by an extraordinarily fortuitous chance the only other officer, Major C. C. Hillman, to whom I had shown the nest, rode by and rescued them. He brought them in to me and I hastened out to the nest tree in an effort to rehabilitate the family.

Nothing was left of the original nest, not a twig in the tree. It then seemed feasible to remove one of the other large Hawk nests and replace it in the nesting tree. Consequently one was tied with ropes, lowered to the ground and carried up to its new position where it was securely lashed. This was not done without considerable material damage to the nest, necessitating several trips up and down the tree for reinforcing twigs as well as bark and grass to line the interior. About two hours were consumed in this precarious labor at the end of which time my respect for avian architects in general and this one in particular was prodigious.

During this time the two nestlings sat on the ground beneath the tree and watched the entire procedure interestedly with their great yellow orbs fastened on the nest. Occasionally they stretched their wings in a contented manner or walked around slowly. They were then replaced in the nest. There was no protest on the rough passage up but immediately on being replaced in their new home rewarded this kindness by thankless hissing and aggressive hostility. No adults were seen during this entire performance, the outcome of which appeared dubious. An inspection the next morning, however, showed the young to have been fed and the life of the family continued on the even tenor of its owlsh way. To guard against another such mishap an order protecting the nest was obtained from the Commanding General of the post.

¹ In this regard it is interesting to note the remarks of E. H. Eaton, *Birds of New York* 1914, page 124, to the effect that it is now almost impossible for Great Horned Owls to raise a family in an open nest, due to the almost certainty of destruction.

The Nests.—The hygiene of the nest was poor, but odor due to rapid desiccation was surprisingly little. Pellets of fur and feathers, fragments of bird and mammal bones, carcasses, corn and insect remains from the intestinal contents of prey, together with the excrement of the owls themselves, carpeted the floor of the nest and gradually sifting down through its interstices formed a dense matted nucleus.

The dry grass lining of the new nest was not welcome and was soon disposed of. The inside rapidly accumulated a flooring of ejecta.

Behavior of the Adults.—An unsuccessful attempt to climb the tree, in full uniform and boots, was made on its discovery. From the action of the adult and the fact that later it was possible to see the young in the nest, it was judged that the nest contained unhatched eggs. The incubating adult remained on the nest until ascent of the tree had commenced, when it flew very quietly into the woods to return promptly when the tree was left. It was seen to gently arrange the eggs and settle down on them while being watched, in full view, from a distance of about fifty yards.

The first part of April was marked by a blizzard and snow-storm and the Owls were not visited until the 7th of this month. One adult was standing on the edge of the nest but flew as the tree was approached.

It was possible to drive an automobile over the hills to the edge of the canyon. An adult could be seen on the nest each time with binoculars, but it soon came to recognize the car and flew at increasingly great distances. The last time one was observed at the nest was on the 15th of April, when it was seen to leave while the automobile was still a full half mile away. Thereafter so acute was the Owl's vision that the sound of Crows mobbing it on the far side of the canyon was the only sign that it had flown.

As the tree was climbed one or both adults usually returned to the immediate vicinity, in response to the cry or beak snapping of the young, and hooted softly. They were readily distinguishable by the hoots, as one had a higher pitched and shorter call than the other. This bird was very much more aggressive than

its mate, often coming into an adjoining tree to glare and hoot and frequently swooping at me, snapping its mandibles like castanets. A favorite position was the top of a dead tree about fifty yards away where it sat and watched the nest alternating this with rotating the head in a general reconnaissance (Pl. IV, fig. 1).

Rarely neither adult was seen and it was noted that this occurred on days of high wind. Occasionally only one appeared and this invariably the more aggressive. On one occasion the mate was missing five days but thereafter appeared almost daily. After the young were somewhat grown the adults did not occupy the nest tree but remained in concealed positions in the woods where they were often found after a quiet approach. On one such occasion both were found evidently fast asleep, as they remained in the trees motionless until approached to within fifty feet when they were startled by a noise and left precipitately.

On flying, both adults would soar out of a tree close to the ground and rapidly disappear among the trees in a most inconspicuous manner.

Call notes were the familiar hoot and an anxious imperative nasal grunt best represented by one of the French nasal sounds as that for the syllable *ain* or the symbol \bar{e} . The clapping of the beaks of the young usually brought an echoing clap from the adults and this sound from the depths of the woods was often the first hint that the old ones were about. Both parents were faithful and solicitous and showed great concern for the welfare of their progeny.

Crows.—Crows were nesting in the other forks of the canyon and the appearance of the owls was a signal for merciless mobbing that went on day after day. On crossing open areas, with the owls flying low, Crows delighted in diving on their backs between the wings and giving vicious pecks. When in a tree the owl kept its gaze fastened on its tormenters and would clap its beak and raise its feathers in a threatening manner on too close approach. Crows never molested the young as was suggested by Holland,¹ although they were repeatedly observed to fly directly over the nest. So characteristic a note was the Crow call that a

¹ Holland, Harold M. Who Would Have Thought It of *Bubo*. *Bird Lore*, Jan.-Feb. 1926, Vol. 28, No. 1, pp. 1-4.

second *Bubo* nest was found in a distant canyon later in the season through this means.

Growth and Development of the Young.—The growth and development of several young Great Horned Owls has been painstakingly described by Reed.¹ The evolution of the two nestlings followed along similar lines but was very much faster, no doubt due to the fact that normal conditions prevailed throughout.

When first observed (April 7) both young were in soft white down plumage without feathers, although unsheathed pinfeathers were just beginning to appear in the wings. They were weak and helpless and unable to raise their bodies from the floor of the nest. One was considerably larger than the other. The irides were olive brown, pupils clouded and white and the abdomens inordinately large. The weight was not more than a few ounces each and from the appearance it was judged that they were about four and eight days old respectively.

Growth was remarkably fast in the first two weeks of observation. On the 11th, or four days after discovery, they weighed eight and fifteen ounces respectively. They could almost be seen to grow and within three more days (April 14) had increased to thirteen and twenty ounces and had begun to unsheath a few feathers on the back and wings so that the white nestling down was slowly being replaced by a soft ochraceous buff fluffy plumage. About this time the larger began to show faint tufts in the place of the horns. Thereafter plumage and growth developed more slowly, the smaller one being a few days behind until later, when imperceptibly it was observed to have overtaken its nest fellow.

By the 29th of April the larger Owl had unsheathed its wing feathers to about two inches, while the tail feathers were approximately one and one-half inches in length. The smaller one had wing feathers an inch to an inch and a half long, while no tail had as yet developed. They were still unable to get around much and had not left the nest at any time to perch on the branches of the tree. On this same date, however, a well grown *Bubo* was caught in another canyon that was nearly fully developed

¹ Reed, Bessie P. Growth Development and Reactions of Young Great Horned Owls. *Auk*, Vol. XLII, No. 1, Jan. 1925, pp. 14-31.

and that confirmed my opinion that the pair under observation were from a rather late nesting. This new bird was well able to fly, measured eighteen inches in length, forty-seven in spread, weighed 1335 grams (approximately forty-six ounces), and had well developed tail and wing feathers in marked contrast to the nestlings.

On May 2, the date of the destruction of the nest, when the fledglings were the estimated age of four and four and one-half weeks, the physical status was as follows: The larger weighed thirty-six ounces, spread thirty-six inches, and measured fourteen inches in length. The smaller weighed two pounds, spread thirty-three and one-half inches, and was twelve inches long.

The iris gradually took on more yellow and the pupil cleared up, although there was still a slightly milky cornea in the smaller Owl at the time of leaving the nest in the middle of May.

The last two weeks in the nest were marked by increase of vigor of the young, together with readiness to wander over the branches of the tree and perch for considerable lengths of time. At the time of the first flight, however, neither the wings or tail were fully developed and it seemed as though this venture would surely fail.

The temperature of the nestlings was interesting. There was a gradual rise from the time of the first observation until the young were ready to fly. In the case of the smaller owl this amounted to an increase of two and four-fifths degrees. All temperatures were taken by rectum. The first temperature recorded for the smaller bird was $102\frac{1}{5}$ degrees on April 19 and the last was 105 degrees on May 17. The larger Owl showed a rise from $102\frac{2}{5}$ degrees on April 20 to $104\frac{1}{5}$ degrees on May 5. This rise in body temperature of these nestling altricial birds coincident with age and development is in accord with a series of some 400 observations made on other species during the current nesting season. The state of body temperature and thermic control is subject to several important factors in nestling birds which constitutes a study of considerable interest. These observations are to be reported in a separate communication.

Behavior of the Young.—On the first observation both young were very weak, scarcely able to lift their heads from the nest.

The smaller one made no protest on handling, while the larger snapped its beak in an indeterminate manner. Two days later they both cried on being handled, a shrill rapidly repeated *che che che* to which the adults answered by hooting. It was not until some days later that the characteristic hissing was added to the beak clapping. These early maneuvers were pure bluff, for if a finger was thrust between the beak no attempt was made to bite nor did the claws grip with any vigor. The vision at this time was very poor, no response was made to waving the hand in front of their eyes but both turned instinctively and hissed when twigs were snapped.

Winking of the eyes was produced either with the nictitating membrane or the upper lid at will, frequently with alternating eyes and after each time the pupil rapidly contracted and dilated spasmodically.

The smaller one throughout the nesting period showed less vigor than the larger, and in its younger days crawled shivering under the larger at every attempt to separate them. When put on the edge of the nest both instinctively gravitated to the center. They liked to have the head stroked. This had a quieting influence and caused them to lie down in the nest and become still. On being fed they closed their eyes, stretched their necks to the full extent and gulped.

Later the youngsters took a great deal of interest in happenings on the ground, sitting up prominently to miss nothing and watching the approach to the tree or departure with fixed gaze, moving around the nest for a better vantage point. They were able to discern a human and follow his motions for at least 200 yards. As the ascent to the tree was commenced they both invariably started clapping their beaks and occasionally peered over the edge of the nest to watch the procedure. On being handled with any firmness they usually cried.

April 24 was a stormy day, the nest swayed tempestuously in the wind while the owlets crouched low. Two weeks later another windy day occurred, but this time the more vigorous young sat up prominently and shook out their feathers, rocking in the wind in evident enjoyment.

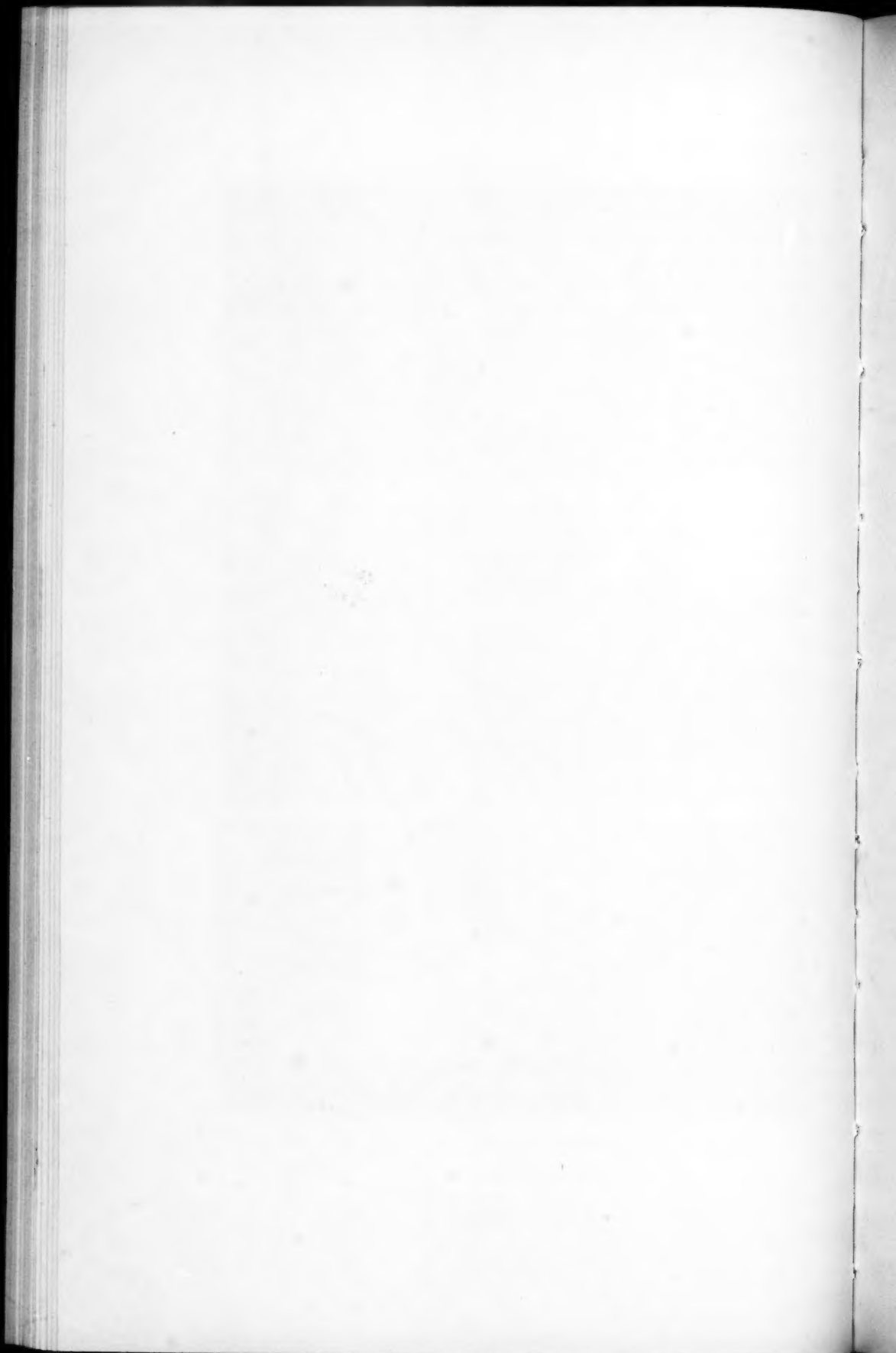
The instinct for self-defense gradually became more definitive



GREAT HORNED OWL.

1. YOUNG AT REST.
2. FIRST DAY IN NEW NEST.
3. HOSTILE ATTITUDE.





so that the nestlings came to rush across the nest and strike viciously with the bill or if caught to flop on the back and clutch powerfully and painfully with the claws. In order to be more terrifying a very impressive attitude was struck with wings raised and feathers spread (Pl. V, fig. 3). They never failed to resent the daily intrusions and became fiercer with increasing age.

A few days before leaving the nest they would very deliberately walk out on a limb as the tree was climbed, teeter uncertainly on the slender branches and hop insecurely across to others in a most distracting manner. On several of these occasions the smaller developed a new call, a faint *yeep yeep* much like that of a small chicken and possibly the same note referred to by Reed as having appeared at four to five weeks of age. While in the nest they usually sat on their hocks with claws closed. When perching it was noted that instead of three toes directed forward one was in its reversed position so that there were two directed backward.

*Food.*¹—An unusual opportunity was presented to follow the daily fare of the young, to make an estimate of the food requirements of these large owls and the amount of destruction to life indulged in. A very varied diet was consumed. In the beginning the partially eaten bodies of the prey were found daily in the nest. As the demands of growth increased, however, only a few bloody feathers, fresh bone fragments or drops of coagulated fresh blood were left to give mute evidence of the night's repast. In every instance the body was devoured commencing with the head. Consumption was complete, including such indigestible fare as rabbit skulls and ducks feet—on all of which the young Owls thrived vigorously.

The following menu is a record of the fare indulged in as found in the nest. This represents the minimum requirements, as there was reason to believe that on some of the days on which no food is recorded the young had actually entirely devoured the night's repast as was evidenced by a few drops of fresh blood or bits of stray feathers and fur not present at the previous inspection.

¹ See also *The Food of the Western Horned Owl.* H. H. Pittman, *Bird Lore*, March-April, 1925, Vol. 27, No. 2, pp. 92-96.

Only when parts of a carcass were positively identifiable as new was it recorded as such. Dates listed below are inclusive and indicate the length of time taken to consume the major portion of a given carcass. There was naturally a little overlap so that frequently a new body was found in the nest while the feet of the previous one was still uneaten.

April 9 and 10	Blue-winged Teal (<i>Querquedula discors</i>), female. The river was full of migrating ducks.
April 11 and 12	Cottontail rabbit and feet of teal.
April 13 and 14	Cottontail rabbit, fresh. (Pl. I, fig. 3.)
April 15	Mallard (<i>Anas platyrhynchos</i>), male. (Pl. II, fig. 1.)
April 16	No visit.
April 17 and 18	Cottontail rabbit.
April 19	Cottontail rabbit, fresh.
April 20	Three gophers. One Mourning Dove (<i>Zenaidura macroura carolinensis</i> .)
April 21	No food.
April 22	Cottontail rabbit.
April 23	One large gopher.
April 24	No food—stormy day.
April 25	Prairie Chicken (<i>Tympanuchus americanus americanus</i>). (Pl. II, fig. 2.)
April 26	No food.
April 27	Two small cottontail rabbits. One large gopher.
April 28	Small domestic chicken.
April 29	Coot (<i>Fulica americana</i>), female, body without head or wings.
April 30	No food.
May 1	Introduced a freshly killed rabbit early in the morning which was received with relish.
May 2	Legs of rabbit remain.
May 3	New nest. Fresh coagulated blood in floor of nest. Unable to identify source.
May 4	Cottontail rabbit—fresh fragments—pelvis.
May 5	Cottontail rabbit—fresh skull. One-half pound of beef left in nest and this was also eaten.
May 6	Cottontail rabbit—fresh forelegs.
May 7	Cottontail rabbit—fresh hindquarters.
May 8	No visit.
May 9	No food. Floor of nest littered with many grains of partially digested corn possibly from the crop of a domestic chicken.

- May 10 Cottontail rabbit—hindquarters.
 Coot—many feathers.
May 12 Mourning Dove—many feathers.
 Cottontail rabbit—fresh vertebrae.

In this period of approximately five weeks there was, therefore, the following total recorded:

Rabbits.....	14	Doves.....	2
Gophers.....	5	Prairie Chicken....	1
Ducks.....	2	Domestic Chicken..	1 (2?)
Coots.....	2	Beef, one-half pound	

Leaving the Nest.—Early on the 15th of May, as the automobile drew up at the edge of the canyon, the larger fledgling gravely vacated the nest and deliberately walked far out on a limb where it sat and calmly watched me as the usual inspection of the nest was made. The younger bird remained in the nest and showed the usual hostility to these intrusions. The older Owls were mobbed by the Crows which unwittingly came very close as I was hidden in the branches of the tree. They made off very rapidly on discovering my presence. As I left the tree the adult Owls also disappeared. The owlet out on the limb showed no signs of returning to the nest but suddenly became very restless and hopped from branch to branch circling the tree. It then abruptly and boldly launched into the air and flew waveringly to a tree some thirty yards distant, where to my surprise an adult, having returned from its retreat, was leaning far out from a branch encouraging the attempt with great solicitude.

By mid-afternoon the smaller Owl had left the nest and was sitting disconsolately alone in the outer branches of the tree. Next morning this one also had made its initial flight.

The young were observed, in company with the adults, a number of times subsequently. In six days they were one-quarter of a mile from the home tree and were in the opposite fork of the canyon. Within eleven days they were capable of remarkably sustained flights.

The hand of man is against these magnificent birds because of their destructiveness, which is in point of fact far less than that of their accuser and the greatest destroyer of all—man himself. It was, therefore, a real satisfaction to see this family fulfill its destiny in growth and maturation.

Supplementary.—Another young Owl about eight weeks old was captured April 29 and held for study.

The Great Horned Owl has been characterized, with certain exceptions, by Dr. A. K. Fisher as untamable. Two Owls of Dr. Coues were gentle and quiet and other cases have been recorded, such as the female Great Horned Owl reported by Holland¹ that for many years has been kept in captivity, raising an annual brood of domestic chickens in defense of which she is very fierce but which during other seasons of the year is complacent and tame if not affectionate. Another tame Owl is reported by Coleman.² Others^{3,4} have made the attempt with varying degrees of success. My Owls proved to be very fierce throughout the period of observation.

The captive spurned all advances and remained as fierce and untamable on the day of its release after four weeks of care as on the day of capture. It would unhesitatingly attack animals many times its size; one could not but admire such an unfettered and audacious spirit.

It was kept in a dark room but preferred the light and was to be found sitting on the window ledge most of the day or on top of a high cabinet where it spent many morose hours. The chief method of defense was with the powerfully curved beak supplemented by the talons in close infighting. When the Owl heard anyone approaching it responded by rapid clapping of the mandibles, later ruffling the feathers of the wings over the back and hissing and finally, as the intruder came close enough, by vicious slashes with the bill that were capable of penetrating to the bone of a finger. If the wings were tied the Owl threw itself on the back and struck with its talons with a grip commensurate with that of a strong man. One can appreciate how inexorable is the issue when this silent death, drifting through the night on muffled wing, closes with steel-sprung claws on the hapless

¹ Holland, Harold M. Who Would Have Thought It of Bubo. *Bird Lore*, Jan.-Feb. 1926, Vol. 28, No. 1, pp. 1-4.

² Coleman, Dell. Billy a Great Horned Owl. *Bird Lore*, Nov.-Dec. 1921, Vol. 23, No. 6, pp. 293.

³ Baerg, W. J. Trying to Tame a Great Horned Owl. *Auk*, April, 1926, Vol. 43, No. 2, pp. 214-217.

⁴ Reed, Bessie P. Growth Development and Reactions of Young Great Horned Owls. *Auk*, Jan. 1925, Vol. 42, No. 1, pp. 14-31.

victim. If the feet were tied together and the wings free the Owl, like the shorn Sampson, lost its pugnacity and became passive. It could then be readily handled and weighed, nor did it attempt to escape. The strength of the Great Horned Owl is remarkable, exceeding that of Hawk or Buzzard, and it has been recorded² to have partially lifted a collie dog from the ground and carry it for some distance.

The weight of my bird at the time of capture was 1335 grams, increasing to 1480 two weeks later. Length was eighteen inches, spread forty-seven inches. The respiratory rate was forty per minute and the cardiac rate was 239 to 253 beats per minute as taken by a stethoscope to the chest wall. The variations in the pulse rate were very rapid, the response to external stimuli being extremely sensitive. The arrival of a newcomer in the room caused instantaneous acceleration with almost as prompt a remission without a movement on the part of the Owl.

The oxygen requirements of birds with their great activity, high temperature and consequent rapid body metabolism must of necessity be greater than that of other warm-bodied animals, including man. It is of interest, therefore, to investigate the oxygen-carrying units of the blood. Contrary to expectations the erythrocytes were far less in number per cubic millimeter than in man, being approximately 2,500,000 or one-half the number found in humans. The red cells were of course nucleated and very resistant to hemolysis. Two per cent acetic acid or twice the strength required to dissolve the blood of man had no effect.

The appetite of this Owl was good, one meal a day was consumed regularly. No gentleness or tractability was shown even at this time, but when the meat was offered on an instrument a ferocious attack was launched at the approaching object which often dislodged the food. After getting a taste of the meal the subsequent morsels were accepted more quietly and with some show of relish, the bill being clapped with gusto after each mouthful.

After four weeks of fruitless endeavor to tame the Owl it was banded with number 419471 and released, May 26, at the site of capture.

Sternberg Hospital, Manila, P. I.

TEXAN BIRD HABITATS.

BY C. W. G. EIFRIG.

FOR many years the writer had an ardent desire to visit the faunal and floral wonderland of Texas, but this desire was not gratified until the summers of 1925 and 1926. The following is a brief summary of some of the interesting observations that I made, several of them novel even to the Texas ornithologist, and there are many surprises and unlooked-for conditions awaiting the visitor from the North, in Texas, even though he has, as the writer, read everything that has appeared in print on the ornithology of the state in the last twenty-five years.

The itinerary of the 1925 trip, the shorter one of the two, was as follows. Waco was my first base of operations, from here trips were made by auto to Cameron, 60 miles southeast, and to Clifton, 38 miles west. Next I went to Bishop, Nueces County, near Kingsville, 20 miles west of Corpus Christi, thence by auto to Brownsville and to Mercedes, in the famous "valley of Texas," as the loyal Texans in all parts of the big state call the part adjoining the Rio Grande. Then back to Bishop, to San Antonio, Austin and Thorndale, where several days were spent, with the thermometer soaring, reaching the 106° mark when I came to Waco again to pack up my specimens and depart for home.

The year 1925 was a most unusual one for Texas, as one after another of the proverbial oldest inhabitants assured me. All agreed that it was the driest year in fifty years or more. At Waco it had not rained since May of the preceding year, not counting several little sprinkles not sufficient to lay the dust. As a consequence of this we noted that the cotton plants, at Waco and along the Gulf, were only from six inches to a foot high, and in that condition flowering and opening their bolls. On the other hand, a northerner had to marvel that the trees and shrubs were uniformly green. That plainly tells their story—they are mainly desert plants which have long ago gotten used to drought conditions. No wonder the mesquite (*Prosopis glandulosa*), which begins at Waco, has extremely large, long and thick roots, in fact has more wood below than above ground, trying to get to ground

water and to store up some, not for a rainy day, but for a rainless year.

Going from the home of my host, an old college-mate, to a nearby little grove or natural park, I encountered another result of the drought. A small creek was supposed to be meandering through the grove, but its bed was dry and only a pool of stagnant, green water was noted in one place. That was true in nearly all parts of the state, and was not without its effect on bird-life. Indeed bird-life was concentrated at these pools and all one had to do to see what birds were in the neighborhood was to sit down at one of these pools and watch the pageant pass in review before him. This is what I did, and I counted about a hundred Western Mockingbirds, ten Nonpareils (the first of this striking species that I had seen), a Summer Tanager, a Texas Sparrow, twenty-three Turkey Vultures, many Western Mourning Doves (*Z. m. marginella*), several Western Lark Sparrows (*C. g. strigatus*), and then such northern acquaintances as Purple Martins, Red-headed Woodpeckers, Tufted Titmice, Orchard Orioles, a Yellow Warbler, a Yellow-throat, two Yellow-billed Cuckoos, five Bronzed Grackles, and some 200 English Sparrows. But even well known northern birds must not be dismissed here without close scrutiny and a consultation of books. Thus according to the Check-list and other authorities there should be no Yellow Warbler here in summer; it is a clear extension of its known range. What about the Yellow-throat? Simmons gives no Yellow-throat breeding for the Austin region, 100 miles southwest of Waco, and gives the Western Yellow-throat (*G. t. occidentalis*) as a migrant there. Yet I found the same form as the one here in Houston and at Brownsville, and the specimen I took does not tally with skins of *occidentalis* in the Field Museum. Any well-known northern bird is apt to turn out here to be of a different subspecies. Not so, however, the Redhead and the Cuckoo; the former goes south as far as Houston, and the latter is found commonly all over Texas, as far as Brownsville. The Nonpareil, that tropical little paint-pot of red, blue, and green, is likely to make a northerner's eyes bulge out when seen for the first time. Its song seemed at this first meeting to be a cross between that of the Goldfinch and Indigobird, as one would expect from the relationship; later

I heard different songs. That is another surprise for one from the North, the birds here sing no matter how warm or hot it is. The thermometer stood at about 95°, it was extremely warm in this little gully, yet all the birds sang lustily. The Texas Sparrow was a new acquaintance and I wished to become better acquainted with it, but it allowed no familiarity whatever; it is very wary, and the only thing one would usually see of it was the large, dark-olive tail disappearing in some bush. It is a bird of the underbrush, if there ever was one. Horned Lizards were very numerous here, more so than I found them in all the other places I visited.

The boundary-line of two great physiological divisions of Texas runs north and south just west of Waco. To the east is the humid blackland prairie region, to the west the arid limestone hill area, the easternmost outpost of the Rockies. In the latter are seen banks, hills, and cliffs of chalk and limestone of dazzling whiteness, partly covered with juniper, scrub-oak and the like. The roads are covered with crushed stone from the nearby ledges, making them almost painfully white to the eye. The Waco people call this region, right at their back-door, West Texas. Here I saw my first Scissor-tailed Flycatcher, a Kingbird, an Arkansas Kingbird, a young Horned Lark of some kind, and a Killdeer. Of these *Tyrannus verticalis* should not have been there; Simmons gives it as a rare migrant for Austin, it clearly is an eastward extension of its known range. The same holds good for the Lark. I did not take it, but had I known at the time what I later found out from the books, I would have taken it. For according to all authorities there should be no Horned Lark of any kind here. Simmons gives as the only one for Austin *praticola*, and that as a rare winter visitant. So what was it? *leucolaema*, *occidentalis*, or *giraudi*? In any case an extension of the known breeding range, because it was a young one in the mottled plumage. The Killdeer looked much out of place in this heat, glare and white dust.

Speaking of young birds, there is another surprise awaiting the northern ornithologist in Texas. One is likely to think that because birds in the North are in the main through with nesting when the greatest heat of summer comes along, that the southern birds ought to nest somewhat earlier than the northern ones,

since it gets warm so much earlier there. But this Lark was almost the only young bird I saw during my whole stay in 1925. I examined all small groups of birds critically, took several specimens to make sure, but there were no young ones. I found numerous nests, but even the Doves seemed to be at their first setting. They were evidently nesting later than the birds in the North. This was, however, somewhat exceptional even for Texas. Mr. R. D. Camp advanced the theory that owing to the extreme drought there was a dearth of insects, and on that account the birds postponed their nesting as much as three or four weeks. But even without a drought it seems that the birds of the South do as a rule not nest earlier than the birds of the North.

On the road to Cameron, I saw, besides old northern friends such as the Cliff Swallow, the Kingfisher, the ever-present Turkey Vulture and some more Texas Sparrows, certain new ones such as the Texas Bob-white and the Roadrunner. The former is smaller than our northern race, but has the same call. It is supposed to be paler, but those I saw had the dark bars above and below wider and of a deeper black than the northern ones. The Roadrunner is that odd, even grotesque Cuckoo, that is almost completely terrestrial, and can run with incredible speed. When they run they hold up their tail as well as the forward part of the body almost vertically, cutting a peculiar figure. Along the Bosque River at Cameron were numerous Gray-tailed Cardinals (*C. c. canicauda*), a Dwarf Cowbird, a Wood Pewee, and a lone Chimney Swift. The 'Check-list' gives the last as breeding to the Gulf coast, but during two visits, each of several weeks' duration, I saw two or three specimens only; Simmons in his 'Birds of the Austin Region' gives it only as an uncommon, irregular migrant. The Gray-tailed Cardinal, which does not show any gray in the tail, is smaller than the northeastern one, but even more brilliantly red. In some places it is the commonest bird, the Western Mockingbird is generally the most abundant, even in towns and villages, there in many instances outnumbering the English Sparrow, with the Mourning Dove a close third.

On June 15 we drove to Clifton, in the limestone hill area. Despite the drought the roadside was a veritable flower garden with patches of verbena, ruellia or petunia, gaillardia, coreopsis,

and many others, while at Clifton, in the dry lime and chalk earth and rock were found the gorgeous standing cypress (*Gilia rubra*), and the mountain pink or centaury (*Erythraea beyrichii*), the former resembling a red-hot bottle-brush, and each plant of the latter being a bouquet in itself, so numerous are the pretty pink flowers. In my quarters, an up-to-date, modern ranch house, I was awakened in the morning by a chorus of birds: Orchard Oriole, Summer Tanager, Scissor-tailed Flycatcher, Lark Sparrow, Cardinal, Nonpareil, and Mourning Dove. The nests of all of these were in the brilliantly flowering shrubs and trees immediately adjoining the house. The Scissor-tail always betrays his presence even from a distance by his harsh, rasping notes, as though he were quarreling, as he usually is. The song of the Western Lark Sparrow I consider one of the finest of all our bird songs. It begins with three clear alto notes, *hoit hoit hoit*, as though exhaled, then two more *hoit hoit* as though inhaled, and then a fine Goldfinch-like warble. The Bluebird, beloved in the North, was also a resident on this ranch.

The Nonpareil or Painted Bunting merits a passing note. I noticed bright green birds, of the size of the Indigo Bunting, singing lustily the same song as the Nonpareil. I thought here is a case of the female singing as well as the male. But these supposed singing females turned out to be males, breeding in this plumage, as the large testicles proved. Looking up my books when I got home, I found no mention anywhere of this condition, not even in Ridgway. Only when I received Simmons' 'Birds of the Austin Region' did I find it stated that the male requires three years to attain the full adult plumage. I think it should be noted in the several hand-books.

A never-to-be-forgotten treat awaited us when we drove to Neill's Creek, winding in and out among the hills near Clifton. As everywhere else the creek was dry, with here and there a water-hole. At one of them we took up our stand, to await developments; nor did we have long to wait. A wonderful pageant of the birds of the neighborhood passed before our eyes in the next half hour. Scores of Cardinals, Mockingbirds, Nonpareils, an Indigo bird, a Field Sparrow, and a Junco. I did not believe in it. Then I saw the last named. But it was there, and turned

out to be *Junco oreganus montanus*, which Simmons calls a very rare winter resident. And here it was in summer, in a stifling heat of from 95 to 100°. It was a non-breeding female. That is another surprise for the northern ornithologist in Texas, namely the number of northern birds that have their breeding range not anywhere near Texas, lingering on here throughout the summer. This is especially true of the water-birds along the Gulf.

June 20 found me at Bishop, near Corpus Christi. This is a great cotton-growing region in the coastal plain. The agricultural soil is many feet thick, being alluvial. They have taken ten to twelve crops of cotton off this soil, without using fertilizer, and it shows no sign of becoming impoverished. A creek would soon wear a deep ravine into this soft material, and such a one is Petronilla Creek, to which we went. Here I saw my first Anhinga, which can be told at once by its thin neck and stiffly spreading remiges, when flying, and the first Small White-eyed Vireo. This seems to be the only Vireo over a large part of Texas. Here at last was some flowing water, lots of it, and here, in the verdure lining the water-course were Cardinals in such numbers as I have never seen before or since. Farther down, the ravine becomes flattened out, trees and shrubs disappear, the flat, low banks become dazzling from alkali, or perhaps from a chalky kind of soil. Here Gulls and Terns from the Laguna Madre, and all the various Herons and Egrets, from nearby breeding islands could be seen in turn. In 1926 I saw three Avocets here and a Godwit, probably the Marbled.

My host was a cotton planter, one of the kindest, most genial and helpful of men, always anxious to have me see things. So he arranged a trip over a part of the famous King's Ranch, to Riviera Beach, where the present owner of the ranch has a club house, which he kindly allowed us to use. Driving forty miles over hardly discernible trails we saw many Laughing Gulls which were flying slowly over the tussocks of grass, peering down, evidently looking for grasshoppers. They did not seem at all like birds of the sea. Here and there an Audubon's Caracara was sitting or rather standing stiffly erect on a post or tree, or Harris' Hawk—both carrion feeders. Finally reaching the club house one could see a steady stream of Laughing Gull Caspian, *caspius*

and Least Terns, Long-billed Curlews and Western Willets pass before him. Also a Pectoral Sandpiper, a Killdeer and a Louisiana Heron were there. In the weedy, sandy flat just back of the beach Cassin's Sparrow was singing industriously, and a fine song it is, finer than the allied Bachman's Sparrow. In many places on these coastal prairies Meadowlarks and Nighthawks are plentiful, but it is not easy to tell to which subspecies they belong. Those at Bishop are probably the Rio Grande Meadowlark (*S. m. hoopesi*), and the Texas Nighthawk (*C. acutipennis texensis*). Scattered over the huge ranch are "tanks." These are water reservoirs, the walls of which are of earth, into which water is pumped by wind mills, to be automatically let into troughs for the cattle or horses. Here there would always be an aggregation of Vera Cruz Redwings (*A. p. richmondi*), the Great-tailed Grackle, of which more later, and the White-necked Raven. The last is no larger than our Crow, neither is there any white in evidence, as only the bases of the neck feathers are white. At the ranch house I found a nest of the Western Blue Grosbeak (*G. c. lazula*). This was evidently the first nest, for there were no young ones about anywhere. Black Vultures were nearly always in sight in this section.

On June 25 we made an auto trip to Brownsville, where I looked up Mr. R. D. Camp, and took a little side trip to a palm grove, six miles southeast, supposed to be the largest grove of unplanted palms in the country. Here Sennett's Warbler (*C. pitiaurumi nigrilora*) was singing vociferously, as though it were not 100° in the shade. A flock of eight Wood Ibises arose from the Rio Grande, on which the old plantation containing the grove is situated.

From June 26 to July 1, I stayed at Mercedes, about thirty miles north of Brownsville, in the glorious "valley" of Texas. This has a distinctly more tropical appearance than the other places visited so far. While there are a few palms at Waco, Austin, San Antonio and Houston, here they are in much greater number, size and beauty. There is a row of stately Washingtonia palms along the main street, and a wealth of crepe myrtle, cape jasmine, camphor trees, eucalyptus, oleander, poinsettia and others surrounding the houses. Behind the houses are orchards of grape-

fruit, orange, and fig trees, also the peculiar china-berry or umbrella tree and mesquite, huisache, and "ebony" (*Pithecolobium flexicaule*). Taking a walk early in the morning, before breakfast, I heard a shrill, siren-like whistle, a long drawn-out *whuee whee*. Seeing no fire engine, whose siren might have made such a sound, I suspected that it must emanate from some bird. Finally I noticed that the sound came from a Great-tailed Grackle, perched on and partly hidden in a china-berry tree, which is almost the only tree here with a dense foliage—shaped like an umbrella or the cap of a mushroom. This was just one of the long repertoire of sounds, calls, whistles, and songs that this bird is capable of. It is a very common sight on the Gulf coast, as far east as Houston, especially in the neighborhood of water, as in the irrigated region of the "valley." It is a clown among birds with its huge tail and droll behavior, but also an ogre to smaller birds, for the same reasons that our Crows and Blackbirds are. Grapes were now ripe here, and so we were invited to a grape-eating party. Here I first met with the Golden-fronted Woodpecker in numbers. They certainly tried to compete with us in the number of grapes eaten. What I took to be young ones of the year turned out to be adult females. There were also no young of these birds to be seen. The Mexican Crested Flycatcher, Curve-billed Thrasher, and Sennett's Thrasher were very abundant here, as also the Inca Dove and Mexican Ground Dove. The calls of the last two are heard from many yards in town, as well as out in the country. The former calls out, *more dough*, or *rough stuff*, in a hoarse yet soft voice, the latter similarly, *well put*, or *go home*, the accent in both on the second syllable.

Going to a reservoir or something of the kind, of the irrigation system, I for the first time saw the dainty Black-necked Stilt in numbers. They were greatly agitated, flying over us, uttering a persistent, monotonous *tick tick tick tick krrrr*. They no doubt had their eggs nearby, on a mud-bar which we could not reach. When alighting, they have the same habit as our Bartramian Sandpiper, of holding their wings straight up before folding them. A group of Mexican Cormorants was standing near on a mud bank. A Killdeer was acting very queerly around us, and a short search revealed its nest. There were no young around, so it seems to have been its first nest for the season.

While we were watching these birds we heard in the distance a peculiar roar, as though made by a chorus of many voices. Again it reminded one of thunder still very far away. I said to my companions, "that must be a heronry." Accordingly, we went to where the sound seemed to be coming from. We traced it to a large thicket, in the Texas sense of the word, a thicket of various kinds of cactus one more spiny than the other, and other low trees and shrubs, all as thorny as they could be, and intertwined and matted together in a fashion to make ingress impossible. Here hundreds of pairs of Doves had their nests, and all were cooing and crooning away vigorously. The leading species was the White-winged Dove, but there were almost as many Western Mourning Doves, and had it been possible for us to penetrate, we perhaps would have seen the Red-billed Pigeon and the White-fronted Dove. This corner of the United States is richer in Pigeons and Doves than any other part, for besides the four species named there are the Inca and the Ground Doves, making six in all. This nesting place gave one a faint idea, I thought, of the vast nesting places of the extinct Passenger Pigeon. Returning towards evening we saw several Lesser Cliff Swallows circling overhead, and a Western Horned Owl in the hands of a man who had just shot it from a small mesquite tree, standing all by itself on a knoll. It is the form *B. v. pallescens*, no paler than ours in Illinois, but decidedly smaller.

From Mercedes I went back to Bishop, thence to San Antonio where I looked more at the Alamo and the old Spanish missions than at the birds, but noted that the Golden-fronted Woodpecker and the Inca and Ground Doves were still about. Then I went to Thorndale, where along the romantic San Gabriel River I found the usual congestion of water-hole birds, and added the Carolina Wren and the Texas Woodpecker to the list. At Walburg, I heard a Mockingbird plainly calling *poorwill poorwill*, showing that the Poorwill no doubt was in that vicinity. The extreme heat, always in the neighborhood of 100°, and the thorniness of the thickets thoroughly discouraged all searching for it.

Finally I went again to Waco, where I packed up my botanical and other specimens and departed for home.

River Forest, Illinois.

THE FORTY-SIXTH STATED MEETING OF THE
AMERICAN ORNITHOLOGISTS' UNION.

BY T. S. PALMER.

Charleston, S. C., with its background of two centuries of scientific activity¹ and the Charleston Museum, the oldest museum in the United States, were hosts of the American Ornithologists' Union on the occasion of the Forty-sixth Stated Meeting. This was the first meeting ever held in the South and it proved to be one of the most interesting and successful in the history of the Union.

The business sessions were held at the headquarters of the Union, the Francis Marion Hotel, and the scientific sessions at the Charleston Museum. The first day was devoted to business, three days to public sessions, and Tuesday afternoon and Friday to excursions.

Business Sessions.—The business sessions on Monday included two meetings of the Council at 10 a. m. and 2 p. m., a meeting of the Fellows at 4 p. m., and a joint meeting of the Fellows and Members at 8 p. m.

At the meeting of the Fellows, an amendment to the By-Laws was adopted omitting the paragraph requiring the mail ballot for nomination of Fellows. The single vacancy in the class of Fellows caused by the death of Leverett M. Loomis was filled by the

¹ This activity began with the arrival of Mark Catesby, who reached Charleston in May, 1723, and remained in the vicinity during the following year. Among other prominent naturalists of the eighteenth century were Dr. Alexander Garden, a correspondent of Linnaeus, who made Charleston his home from 1730 to 1783; André Michaux, the French botanical explorer, 1787-94, who established his celebrated garden near Ten Mile Station; and Louis A. G. Bosc, who collected from 1798 to 1800, and whose birds were given to Audin.

The principal ornithologists of the nineteenth century who left notes of their visits were Alexander Wilson, who spent a few days in the city in 1809; Titian R. Peale, in 1818 and 1824; Audubon, who made several visits in 1831, 1832, 1833-34, and 1836-37; William Brewster in 1883, 1884, and 1885; James E. Benedict in 1890-91; W. C. Kendall in 1891; and Dr. E. A. Mearns, E. J. Brown and J. H. Riley in 1911. The most important ornithological observations have been made by Dr. John Bachman, who resided in Charleston from 1815 until his death in 1874; by Arthur T. Wayne, dean of South Carolina ornithologists, who has been actively at work on the birds of the region since Brewster's visit in 1883; and by Ellison A. Williams, Herbert R. Sass, Alexander Sprunt, Jr., Edw. von S. Dingle, E. B. Chamberlain, and other local workers.

election of Arthur T. Wayne.¹ At the evening meeting 23 Fellows and 19 Members were present. Following the roll call and reading and approval of the minutes of the previous meeting, the report of the Secretary was presented showing a total membership of 1741. The report of the Treasurer listed total receipts of \$7,230.27 and disbursements of \$6,693.45, leaving a balance of \$536.82. The report of the Investment Trustees showed invested funds of the Union amounting to \$30,603.61, including \$7,250 in the Brewster Memorial Fund.

The elections resulted in the re-election of the present officers for 1929: President, Alexander Wetmore; Vice-presidents, Joseph Grinnell and J. H. Fleming; Secretary, T. S. Palmer; Treasurer, W. L. McAtee. The seven members elected to the Council were: A. C. Bent, Ruthven Deane, E. H. Forbush, H. C. Oberholser, C. W. Richmond, T. S. Roberts and P. A. Taverner. Four Members were elected from the class of Associates, and on recommendation of the Council three Honorary Fellows, one Corresponding Fellow and 235 Associates.

The general business transacted included approval of the recommendation of the Council concerning details of the sale of the 'Ten-Year Index to The Auk,' an appropriation for the publication of the 'Check-List of North American Birds,' authorization for beginning work on a new 'Ten-Year Index of The Auk' for the years 1921-1930, assistance in the publication of the Zoological Record 'Aves,' and approval of the report of the Ridgway Memorial Committee. Resolutions were adopted approving in principle the Norbeck game refuge bill as passed by the Senate, the work of the International Committee on Bird Protection; and expressing the thanks of the Union to the Trustees and Director of the Charleston Museum and to various organizations and individuals for courtesies extended during the meeting.

Public Sessions.—The regular sessions were held in the Lecture Hall of the Charleston Museum, November 20 (9 a. m. to 1 p. m.), 21 and 22 (9.30 a. m. to 5.30 p. m.), the technical and special sessions on Wednesday and Thursday mornings in the Girls' and Boys' Room of the Museum, the motion picture session in the

¹ On account of illness Mr. Wayne was unable to be present, but Mrs. Wayne attended most of the sessions.

Charleston High School which occupies the site of Dr. Bachman's home and garden, and the memorial session, on Tuesday evening, in the Parish Hall of St. John's Lutheran Church, Clifford and Archdale Streets.

The program while not as long as that of some of the previous meetings required simultaneous sessions on Wednesday and Thursday mornings to accommodate the number of papers presented. Of the 54 papers on the list only 4, due to absence of the authors, were read by title. The wealth of material offered for the program is gratifying proof of the activity of members but experience shows that further limitations are necessary to provide adequate time for discussion.

The sessions opened with an address of welcome by Dr. Charles W. Kollock, President of the Charleston Museum, who referred to the fact that the Museum, founded in 1773, was the oldest in the United States and also to the importance of Charleston as a scientific center from the days of Catesby, Audubon and Bachman down to the present time. Greetings from the Chief of the Biological Survey, Paul G. Redington, were then presented by W. C. Henderson, Associate Chief; from the National Association of Audubon Societies by T. Gilbert Pearson, President of the Association; from the Cooper Ornithological Club by Dr. Loye Holmes Miller, President of the Board of Governors; and from the Royal Australasian Union by the Secretary. By a singular coincidence the A. O. U. and the R. A. O. U. both held their public meetings this year on November 20-22. At the business meeting on Monday evening greetings were sent by cable from the A. O. U. to the sister organization in session at Canberra, Australia, and a reply, received within 48 hours, was read at the meeting on Thursday morning.

The regular program opened very appropriately with a paper by Witmer Stone on 'Catesby's Natural History of Carolina and its Connection with the Nomenclature of North American Birds.' Dr. Stone showed that in many species, owing to lack of exact dates and localities, it was impossible to determine whether Catesby's specimens represented northern or southern forms. He urged that each case should be decided on its merits and that the general principle of the first revisor of each species should be adopted,

in order to avoid unnecessary changes in nomenclature such as have been suggested by some recent writers. In accordance with the custom of the Union a memorial address on the life and work of Harry Balch Bailey, one of the Founders of the Union, was presented by A. K. Fisher. In lighter vein under the title 'Collections and Recollections' was an interesting account of field experiences, chiefly in collecting warblers' nests, by Samuel Scoville, Jr. The morning program was completed by a comprehensive 'Historical Review of Florida Ornithology' by A. H. Howell.

On Tuesday evening a special memorial session was arranged in the Parish Hall of St. John's Lutheran Church, adjoining the church where Dr. Bachman preached for many years. The hall was filled to capacity. The program, which was devoted mainly to the work of Audubon, Bachman and Loomis in South Carolina, began with a paper by Alexander Sprunt, Jr., entitled 'Audubon and Bachman as Co-workers and Friends,' followed by the reading of 'Some Letters of Bachman to Audubon' by Ruthven Deane. Louis B. Bishop's memorial address on Leverett Mills Loomis, a Fellow of the Union who died early in the year, brought out very clearly the important part which Loomis played in the development of the ornithology of the Piedmont region of South Carolina, and described his work in later years on the Pacific Coast in connection with the California Academy of Sciences. The final paper by Arthur A. Allen entitled 'June in Audubon's Labrador' was illustrated by lantern slides showing characteristic scenes and birds of the region lying along the Gulf of St. Lawrence which was visited by Audubon in 1833.

The program of the technical sessions on Wednesday and Thursday mornings comprised a number of brief contributions on a variety of topics. Some of these papers, such as Griscom's discussion of 'The Green Herons of the World, a Problem in Variation,' Swarth's 'A New Bird Family (Geospizidae) from the Galapagos Island,' Murphy's discussion of 'What is Peale's Petrel,' and Todd's 'Critical Remarks on the Eastern Chickadees', treated of special groups. Others related to birds of distant regions such as Lefevre's two contributions on the birds of China, and Roger's 'Autumn Migration of Limicolae in Holland.' Other papers of importance included Miller's 'Notes on the Anatomy of the Emu'

and his 'Food of the American Goldfinch,' Chapin's 'Eye Color as a Racial Character,' and Lincoln's 'What Constitutes a Record?'

In the general sessions some of the results of bird banding were presented in Lyon's paper on 'Variation in Migration,' May's 'Results from Banding Black-crowned Night Herons' and Lincoln's 'Causes of Mortality in Birds,' all of which aroused considerable discussion. Among the more technical by-products of bird banding were two contributions from the Baldwin Bird Laboratory, one by Kendeigh on the 'Body Temperatures of Adult Birds' and the other by Worley on 'Measurements of Birds.' The subject of geographic distribution was represented by Murphy's 'Islands as Species Makers' and Miss Cooke's 'Recent Spread of the Starling in North America.' Local records of special interest included Barbour's 'Note on the Ivory-billed Woodpecker in South Carolina,' Townsend's 'Breeding of the Yellow-crowned Night Heron at Ipswich, Mass.,' Decker and Bowles' 'Prairie Falcon in the State of Washington,' Mrs. Wilson's 'Rare Visitors to the Detroit Area,' and Breckenridge's 'Nelson's Sparrow Breeding in Minnesota.' Maunsell Crosby's plea for 'Discrimination in Collecting Specimens,' Griscom's 'Notes on Field Identification of Terns,' Mrs. Graves' 'Forty Years of Bird Study in Connecticut,' and Roberts' 'Changes in the Distribution of Certain Birds in Minnesota during the Past Fifty Years' all presented interesting results of field work from widely divergent angles.

A vivid word picture of 'California's Ancient Bird Life' by Loye Holmes Miller, followed by lantern slides of the deposits at Lompoc and Los Angeles, brought out very clearly some of the interesting facts in connection with the fossil birds of Southern California, while Wetmore's 'Birds of the Pleistocene in Florida' summarized some of the recent discoveries in avian palaeontology in the southeastern corner of the United States. In presenting the results of efforts in behalf of International Bird Protection at the Geneva Conference, T. Gilbert Pearson showed an interesting series of portraits of prominent European ornithologists and conservationists, many of whom are members of the Union. Chapin gave an interesting account of 'Habits of African Swifts' and Gross, in describing the 'Bird Life on the Monte Verdi Banana

Plantation in Costa Rica,' exhibited a series of slides illustrating some of the characteristic birds of the American tropics.

At the Thursday afternoon session, devoted to presentation of motion pictures, the five films differed widely in subject. Arthur A. Allen reviewed the 'Progress in Ruffed Grouse Investigations,' Swarth exhibited a reel showing the flightless Cormorant of the Galapagos Islands, Stoddard a most artistic series of views of bird life in southern swamps, Herrick some results of recent studies of 'The American Eagle in Action' and Cleaves, under the title 'Camera Trophies—1928,' a series of views taken mainly in southern Labrador.

Exhibits.—The exhibits were partly artistic and partly historical. In a small room on the north side of the Museum were arranged a carefully selected group of 37 bird paintings and drawings by ten bird artists. In the Museum proper were manuscripts, letters, and labels in the handwriting of Dr. Bachman, an early curator of the Museum, and historic and recent specimens of birds representing species discovered in the vicinity of Charleston. In a memorial room in St. John's Lutheran Church were exhibited several portraits of Dr. Bachman, together with copies of manuscripts, sermons, and letters and several pieces of furniture which were associated with his long connection with the church. These various exhibits served to recall in a vivid manner the activities of former workers in this region.

Social Features.—The social gatherings included the annual dinner on Wednesday evening, an afternoon excursion on Tuesday, and an all-day outing on Friday. The dinner in the historic Hibernian Hall on Meeting Street was attended by about 200 members and guests. After the dinner the assemblage was entertained for an hour by the Society for the Preservation of Spirituals. This organization, whose object is the perpetuation of plantation melodies of earlier days, rendered a number of selections in a unique and characteristic manner. Many of the members of the Society were in the costume of the middle of the last century and in presenting the melodies preserved the characteristic accompanying movements as well as the rhythm. Following the dinner informal receptions were held at the residences of several of the older families and the members of the Union were given an

exceptional opportunity of seeing some of the old homes and the characteristic life of early Charleston.

Tuesday afternoon was devoted to a trip to a number of localities of scientific interest in the vicinity of the city.¹ Leaving the headquarters about 2 p. m., the members were taken by auto to the Middleton Gardens, where André Michaux the botanist was a frequent visitor and did much of his work, and where he personally supervised the planting of the first specimens of *Camellia japonica* in America. Several of these and other plants introduced by Michaux are still to be seen and the collection of camellias is said to be one of the largest in America. A visit was made to the Newington Plantation, where Catesby was a guest of Col. Joseph Blake in 1723, and to the Goose Creek Section where Audubon and Bachman spent many hours in hunting and in bird study, and a stop was made at the Otranto Club, formerly the home of Dr. Alexander Garden.

On Friday the Union was hospitably entertained by Mr. and Mrs. C. D. Huyler at their winter home on Dewees Island in honor of Arthur T. Wayne. About 160 members and guests were taken by boat down the harbor and by the inland waterway to the Island, passing en route Fort Sumter, and historic points on Sullivan Island and the Isle of Palms, formerly known as Long Island. Dewees Island and the adjoining Caper Island are now maintained by Mr. Huyler as a winter residence and bird refuge, where in the pine woods, palmetto groves and salt marshes many species of native birds find protection and attractive breeding and feeding places.

During the excursions on Tuesday and Friday opportunities were afforded for seeing a number of characteristic southern birds. More than fifty species were seen on the trip to Dewees Island and members who spent some time in the field observed more than a hundred species during the week.

Invitations for the next annual meeting were received from several eastern cities but by unanimous vote of the Union it was decided to accept the invitation of the Philadelphia members and

¹ As a guide for this trip an attractive circular, 'The A. O. U. Seeing the Audubon-Bachman Country,' with brief historical and descriptive notes, was prepared by the Local Committee on Arrangements.

the Academy of Natural Sciences, and the Forty-seventh Stated Meeting will, therefore, be held in Philadelphia in the autumn of 1929.

THE PROGRAM.

(Papers are arranged in the order in which they were presented at the meeting. Those marked with an asterisk (*) were illustrated by lantern slides.)

TUESDAY MORNING

Address of Welcome. DR. CHAS. W. KOLLOCK, President of the Charleston Museum.

Greetings from the Chief of the Biological Survey, U. S. Dept. of Agriculture, presented by W. C. Henderson, Associate Chief.

Greetings from the National Association of Audubon Societies. T. GILBERT PEARSON, President of the Association.

Greetings from the Cooper Ornithological Club. LOYE HOLMES MILLER, President of the Board of Governors.

Greetings from the Royal Australasian Union, in session at Canberra, Australia, Nov. 20-22, presented by the Secretary of the A. O. U.

Roll Call of Fellows and Members, Report of Business Meeting, Announcement of the Result of Elections.

1. Catesby's 'Natural History of Carolina' and its connection with the Nomenclature of North American Birds. WITMER STONE, Academy of Natural Sciences, Philadelphia, Pa. (20 min.)
2. In Memoriam—Harry Balch Bailey. A. K. FISHER, Biological Survey, Washington, D. C. (25 min.)
3. Collections and Recollections. SAMUEL SCOVILLE, JR., Philadelphia, Pa. (20 min.)
4. An Historical Review of Florida Ornithology. A. H. HOWELL, Biological Survey, Washington, D. C. (30 min.)

TUESDAY AFTERNOON

Motor Trip to Collecting Grounds of Catesby, Audubon and Garden.

TUESDAY EVENING—MEMORIAL SESSION

St. John's Lutheran Church Parish House,¹ Clifford and Archdale Streets, 8:15 p. m.

5. Audubon and Bachman, Co-workers and Friends. ALEXANDER SPRUNT, JR., Charleston Museum. (25 min.)
6. Some Letters of Bachman to Audubon. RUTHVEN DEANE, Chicago, Ill. (15 min.)

¹ St. John's Lutheran Church, where Bachman was pastor, was open to visitors before the meeting and the members of the A. O. U. visited the church, the Bachman Memorial Room, and his grave under the chancel.

7. In Memoriam—Leverett Mills Loomis. LOUIS B. BISHOP, Pasadena, Calif. (25 min.)
8. June in Audubon's Labrador. Illustrated. ARTHUR A. ALLEN, Cornell University, Ithaca, N. Y. (45 min.)

WEDNESDAY MORNING—GENERAL SESSION

9. *The Body Temperature of Adult Birds. S. CHARLES KENDEIGH, Cleveland, Ohio. (30 min.)
10. *Recent Spread of the Starling in North America. MAY THACHER COOKE, Biological Survey, Washington, D. C. (15 min.)
11. *The Measurement of Birds. LEONARD G. WORLEY, Cleveland, Ohio. (25 min.)
12. *Results from Banding Black-crowned Night Herons. JOHN B. MAY, State Ornithologist, Boston, Mass. (15 min.)
13. *Variations in Migration. W. I. LYON, Waukegan, Ill. (15 min.)
14. Some Causes of Mortality in Birds. F. C. LINCOLN, Biological Survey, Washington, D. C. (20 min.)
15. Some Rare Visitors to the Detroit Area. MRS. ETTA S. WILSON, Detroit, Mich. (20 min.)
16. *The Bird Life of Mt. Roraima, British Guiana. FRANK M. CHAPMAN, American Museum of Natural History, New York. (Read by title.)
17. Forty Years of Bird Study. MRS. CHARLES B. GRAVES, New London, Conn. (20 min.)
18. Notes on the Field Identification of Terns. LUDLOW GRISCOM, Museum of Comparative Zoology, Cambridge, Mass. (20 min.)

WEDNESDAY MORNING—TECHNICAL SESSION

19. Notes on the Anatomy of the Emu. W. DEWITT MILLER, American Museum of Natural History, New York. (15 min.)
20. The Green Herons of the World, A Problem in Variation. LUDLOW GRISCOM, Museum of Comparative Zoology, Cambridge, Mass. (10 min.)
21. Egg Weights from Egg Measurements. W. H. BERGTOLD, Denver, Colo. (Read by title.)
22. What is Peale's Petrel? ROBERT CUSHMAN MURPHY, American Museum of Natural History, New York. (10 min.)
23. Summer Birds of Hong Kong, China. RUFUS H. LEFEVRE, Seneca Castle, N. Y. (15 min.)
24. Notes on the Autumn Migration of Limicolae in Holland. CHARLES H. ROGERS, Princeton Museum, Princeton, N. J. (30 min.)
25. The Ivory-billed Woodpecker in South Carolina. THOMAS BARBOUR, Museum of Comparative Zoology, Cambridge, Mass., presented by Edward B. Chamberlain. (10 min.)

26. The Breeding of the Yellow-crowned Night Heron at Ipswich, Mass. CHARLES W. TOWNSEND, Ipswich, Mass. (10 min.)
27. Some Problems in Local Distribution in Angola. RUDYERD BOULTON, Carnegie Museum, Pittsburgh, Pa. (Read by title.)
28. A New Bird Family (Geospizidae) from the Galapagos Islands. H. S. SWARTH, California Academy of Sciences, San Francisco, Calif. (15 min.)
29. The Food of the American Goldfinch. W. DEWITT MILLER, American Museum of Natural History, New York. (20 min.)
30. Discrimination in Collecting Specimens. MAUNSELL S. CROSBY, Rhinebeck, N. Y. (10 min.)

WEDNESDAY AFTERNOON

31. *California's Ancient Bird Life. LOYE HOLMES MILLER, University of California at Los Angeles, Los Angeles, Calif. (45 min.)
32. *International Bird Protection at the Geneva Conference. T. GILBERT PEARSON, President, National Association of Audubon Societies, New York. (25 min.)
33. *Nesting Habits of Wagler's Oropendola on Barro Colorado Island. FRANK M. CHAPMAN, American Museum of Natural History, New York. (Read by title.)
34. *The Habits of African Swifts. JAMES P. CHAPIN, American Museum of Natural History, New York. (20 min.)

THURSDAY MORNING—GENERAL SESSION

35. *Bird Laboratory Methods. S. PRENTISS BALDWIN, Cleveland, Ohio. (Read by title.)
36. *Some Changes in the Distribution of Certain Birds in Minnesota during the Past Fifty Years. THOMAS S. ROBERTS, University of Minnesota, Minneapolis, Minn. (20 min.)
37. *Islands as Species Makers. ROBERT CUSHMAN MURPHY, American Museum of Natural History, New York. (25 min.)
38. *Birds of the Pleistocene in Florida. ALEXANDER WETMORE, Smithsonian Institution, Washington, D. C. (15 min.)
39. *Nelson's Sparrow Breeding in Minnesota, with a Description of the Juvenal Plumage. W. J. BRECKENRIDGE, University of Minnesota, Minneapolis, Minn. (15 min.)
40. Progress of the Waterfowl Census. HARRY C. OBERHOLSER, Biological Survey, Washington, D. C. (20 min.)
41. The Home Garden Sanctuary. WINTHROP PACKARD, Canton, Mass. (10 min.)
42. Bird Life of Monte Verdi Banana Plantation, Costa Rica. ALFRED O. GROSS, Bowdoin College, Brunswick, Maine. (45 min.)

THURSDAY MORNING—SPECIAL SESSION

43. Birds of China. RUFUS H. LEFEVRE, Seneca Castle, N. Y. (30 min.)

44. What Constitutes a Record? F. C. LINCOLN, Biological Survey, Washington, D. C. (15 min.)
45. Eye-color as a Racial Character. JAMES P. CHAPIN, American Museum of Natural History, New York. (10 min.)
46. Unrecorded Courtship Ornamentation in the Least Bittern. CHARLES H. ROGERS, Princeton Museum, Princeton, N. J. (15 min.)
47. Critical Remarks on the Eastern Chickadees. W. E. CLYDE TODD, Carnegie Museum, Pittsburgh, Pa. (10 min.)
48. The Prairie Falcon in the State of Washington. F. R. DECKER and J. HOOPER BOWLES, Washington, presented by Geo. Finlay Simmons. (15 min.)

THURSDAY AFTERNOON—MOTION PICTURES

49. Progress in the Ruffed Grouse Investigation. ARTHUR A. ALLEN, Cornell University, Ithaca, N. Y. (25 min.)
50. The Cormorant of the Galapagos Islands. H. S. SWARTH, California Academy of Sciences, San Francisco, Calif. (15 min.)
51. Feathered Fishers of Southland Swamps. H. L. STODDARD, Beachton, Ga. (30 min.)
52. Announcement Regarding Educational Work of National Association of Audubon Societies by the President, T. GILBERT PEARSON, New York City. (5 min.)
53. The American Eagle in Action. FRANCIS H. HERRICK, Western Reserve University, Cleveland, Ohio. (35 min.)
54. Camera Trophies—1928. HOWARD H. CLEAVES, New York City. (45 min.)

ATTENDANCE.

The register showed the names of 27 Fellows, 1 Corresponding Fellow, 26 Members and 76 Associates, making a total of 130 members. Most of these members are included in the group photograph taken in front of the Museum. Among the number were two founders, Charles F. Batchelder and Albert K. Fisher, and three Fellows elected at the first meeting, Ruthven Deane, Thomas S. Roberts and W. E. Saunders. The Union had the pleasure of welcoming one of its Corresponding Fellows, Mr. M. A. Carriker, who has recently returned to the United States after a residence of some years in Santa Marta, Colombia, and was thus able for the first time to attend an annual meeting. Among the members who came from a distance were Dr. Loye Holmes Miller, Joseph Mailliard and Harry S. Swarth from California; Mr. and Mrs. J. H. Fleming, Hoyes Lloyd, P. A. Taverner

and W. E. Saunders from Canada; Dr. A. O. Gross from Maine; Dr. T. S. Roberts and W. J. Breckenridge from Minnesota; and Mr. and Mrs. Ruthven Deane, Mr. and Mrs. W. I. Lyon and Charles S. Kendeigh from Illinois.

Representatives were present from 21 states, the District of Columbia, and the Province of Ontario. The states included California, Minnesota and all of those east of the Mississippi River except 7—Vermont, Rhode Island, Delaware, Indiana, Kentucky, North Carolina and Mississippi. The largest delegations of members outside of South Carolina included 24 from the District of Columbia, 16 from Pennsylvania, 12 or more each from Massachusetts and New York, and 10 or more from Georgia.

Fifteen natural history museums were represented by one or more of their members (including five directors), viz., American, California Academy of Sciences, Canadian National, Carnegie, Charleston, Cleveland, Comparative Zoology, Everhart, Museum of History, Art and Science of Los Angeles, Philadelphia Academy, Princeton, Royal Ontario, University of Alabama, University of Michigan and University of Minnesota.

Thirteen institutions of higher learning were represented. In addition to the four universities just mentioned the list included Bowdoin, Cornell, Peabody College in Nashville, Western Reserve University in Cleveland, State College of Agriculture of Georgia, and the Universities of California, Illinois, Pennsylvania and South Carolina.

FELLOWS AND MEMBERS PRESENT.

FELLOWS.—Arthur A. Allen, Charles F. Batchelder, Arthur C. Bent, Louis B. Bishop, James P. Chapin, Ruthven Deane, Albert K. Fisher, James H. Fleming, Edward H. Forbush, Ludlow Griscom, Joseph Mailiard, W. L. McAtee, W. DeW. Miller, Robert C. Murphy, Harry C. Oberholser, T. S. Palmer, James L. Peters, Charles W. Richmond, Joseph H. Riley, Thomas S. Roberts, William E. Saunders, Witmer Stone, Harry S. Swarth, Percy A. Taverner, W. E. Clyde Todd, Charles W. Townsend, Alexander Wetmore—Total 27.

CORRESPONDING FELLOW.—M. A. Carriker.

MEMBERS.—Vernon Bailey, Mrs. Vernon Bailey, Thomas Barbour, Miss May Thacher Cooke, Maunsell S. Crosby, Alfred O. Gross, Francis H. Herrick, Arthur H. Howell, Herbert K. Job, F. H. Kennard, F. C. Lincoln, Hoyes Lloyd, William I. Lyon, Loye Holmes Miller, John T. Nichols, T. Gilbert Pearson, Edward A. Preble, Charles H. Rogers,

George Finlay Simmons, Alexander Sprunt, Jr., J. Fletcher Street, Herbert L. Stoddard, George M. Sutton, Josselyn Van Tyne, Francis Beach White, Robert W. Williams—Total 26.

ELECTION OF FELLOWS, MEMBERS AND ASSOCIATES.

FELLOWS—1

Arthur Trezevant Wayne, Mount Pleasant, S. C.

HONORARY FELLOWS—3

Jean Delacour, Château de Clères, France

Richard Meinertzhagen, London, England

Harry Forbes Witherby, London, England

CORRESPONDING FELLOWS—1

Oscar Neumann, Berlin, Germany

MEMBERS—4

Alexander Sprunt, Jr., Charleston, S. C.

John Fletcher Street, Philadelphia, Pa.

George Hay Stuart, 3rd, Philadelphia, Pa.

Josselyn Van Tyne, Ann Arbor, Mich.

ASSOCIATES—235

The names of Associates who qualify will appear in the annual directory of members in 'The Auk' for April.

REPORT OF THE SECRETARY.

BY T. S. PALMER.

THE Union closes its 45th year in a prosperous and fairly satisfactory condition as to its membership and general activities.

Membership.—The total membership is 31 less than reported last year, notwithstanding the fact that 188 new Associates were elected at the last annual meeting. Losses due to death, resignation, and delinquency cause a serious turn-over each year and prevent rapid increase in the membership. The members are distributed in all the States and Territories except Hawaii, in the West Indies, and in a number of foreign countries and colonies on all of the continents. The following tabulated statement shows the figures for the present membership in comparison with those of last year and of 10 years ago:

		Retired	Hon-	Corre-			
	Fellows	Fellows	orary	sponding	Members	Associates	Total
	Fellows	Fellows	Fellows	Fellows			
1918	50	2	15	56	80	750	953
1927	49	5	23	92	103	1500	1772
1928	49	5	22	88	103	1474	1741

The losses by death were greater than ever before and included those of 1 Fellow, 1 Retired Fellow, 2 Honorary Fellows, 4 Corresponding Fellows, 2 Members, and 23 Associates—a total of 33.

Notwithstanding the wide distribution of its membership, there is still a large area with which the Union, unfortunately, is not in contact, i. e.—eastern Europe and Siberia, comprising possibly one-third of the Palearctic region. Since the World War much activity in zoological exploration has been manifested by the Soviet Governments, and no doubt some ornithological work is being carried on. Important ornithological collections are located at Leningrad, Moscow, Kharkov, Tiflis in Georgia, and Tashkent in Turkestan, while the University of Tomsk is the home of the Siberian Ornithological Society and the place of publication of the Siberian ornithological journal 'Uragus.' During the past year relations have been established with the Department of Zoology

of the Mid-Asiatic University at Tashkent, and in the near future it is hoped that similar relations may be extended to Tomsk and to some of the ornithologists who are working in other parts of Siberia.

Activities of Members Abroad.—The past year has been characterized by unusual activity in expeditions from the principal museums and in the organization of these expeditions and in actual field work, members of the Union have taken an active part. Early in the year the Roraima Expedition of the American Museum returned from British Guiana with 1,250 birds collected by T. D. Carter and G. H. H. Tate. In April, Dr. Chapman returned after a third season spent at Barro Colorado in the Canal Zone, where he devoted special attention to the nesting habits of the *Oropendola*. Incidentally it may be mentioned that part of the results of his work at Barro Colorado are now on exhibition at the American Museum in a magnificent habitat group showing some of the more conspicuous of the 220 species known from that island. In June the American Museum Tanganyika expedition left for East Africa accompanied by Allen L. Moses, a bird collector formerly with the 'Blossom' expedition. This party expects to pay special attention to the avifauna near Lake Tanganyika and adjoining highlands of the Belgian Congo. Another important African expedition is that in charge of the well known collector Correia which has been working on San Thomé Island in the Gulf of Guinea. On July 21 the Tyler Duida Expedition sailed from New York for Para, Brazil, expecting to proceed up the Amazon to Manaus, thence via the Rio Negro to the northern border of the Amazon basin and to Mt. Duida, Venezuela. In Brazil, Emil Kaempfer is still in the field and much valuable material has been received as a result of his work. The Sanford-Whitney expedition in the South Pacific is actively at work and recently Lee S. Crandall left for New Guinea to collect birds for the New York Zoological Society and the Museum.

The Carnegie Museum has undertaken a three-year survey of the avifauna of Venezuela, a project in charge of Ernest G. Holt, who has recently left to take up the work. Early in the year the Denver Museum despatched an expedition in charge of its director, J. D. Figgins, to conduct explorations in British Guiana.

The Museum of Comparative Zoology was also active in the tropics last spring with an expedition to Spanish Honduras in charge of Jas. L. Peters and Outram Bangs, while the director, Dr. Thomas Barbour, visited Barro Colorado. The Philadelphia Academy was represented in the West Indies by James Bond, who made an extensive collection in Haiti and is now collecting in St. Lucia and St. Vincent. Since June the Public Museum of Milwaukee has had an expedition at work in British East Africa, where it is represented by O. J. Gromme. The National Museum has received a number of birds from Dr. Hugh M. Smith in Siam, from D. C. Graham in Sze Chuen, and also from the Rock Expedition in China. The Academy of Natural Sciences in Philadelphia expects soon to receive specimens from R. M. de Schauensee, who left in October to continue his work in northern Siam. The Field Museum is preparing to dispatch another expedition to Asia, this time to Burma and the mountains of eastern India and will number among its members Josselyn Van Tyne as ornithologist.

As usual, several members visited Europe. Dr. T. Gilbert Pearson and Dr. John C. Phillips were the American representatives at the International Conference for Bird Protection held in Geneva in May. After the meeting Dr. Pearson visited France, Holland, Belgium and England, and Dr. Phillips spent several months in northern Ireland. During the summer Dr. L. C. Sanford visited a number of museums in western Europe in search of specimens of birds belonging to genera not previously represented in the American Museum collection. Charles H. Rogers spent some time at several European museums and Mrs. Naumburg also spent some time on the continent. Austin Paul Smith is still continuing his work in Costa Rica and A. W. Anthony, who has been collecting for the past three years in Guatemala, has brought his work to a close and has returned to the United States.

Biography and Bibliography.—Considerable attention has been given during the year to the subject of bibliography. The Secretary has been engaged for nearly eight months in reading proof on the 'Ten-year Index to The Auk' and has been assisted by Charles W. Richmond and Frank Bond, the latter undertaking

the laborious work of examining and checking some 8,400 cross references. The Secretary has also published a paper containing biographical notes on nearly 200 persons whose names are connected with the nomenclature of California birds. Several bibliographies have appeared during the year, including an excellent bibliography of the publications of Edward Howe Forbush issued on the occasion of his 70th birthday, and Miss Phoebe Knappen's 'Suggestions for a Bibliography on Avian Longevity' and on the 'Weight of Birds.' Members of the Committee assisted in completing authors' names in several other bibliographies including those in the last volume of Bent's 'Life Histories of North American Birds,' and Mrs. Bailey's 'Birds of New Mexico,' and Lincoln's 'Bibliography of Bird Banding.'

Museum Collections.—Reference has frequently been made in recent reports to the work of the Committee on Biography and Bibliography in collecting information regarding the more important public and private bird collections. This work has been continued during the year and part of the data tabulated. About 100 of the largest collections have been divided into four groups, viz.:

Class A, collections containing more than 200,000 specimens.

Class B, collections containing from 100,000 to 200,000 specimens.

Class C, collections containing from 50,000 to 100,000 specimens.

Class D, collections containing less than 50,000 specimens.

Dr. Hellmayr's account of the collection in the Munich Museum presented at the last meeting of the Union has been published. Valuable data were secured through Dr. Sushkin regarding the collection at Leningrad and through Dr. D. N. Kashkarov regarding the Zarudny collection at Tashkent, Turkestan. Through the activity of the larger museums which maintain world-wide collections of birds, the number of genera included in Sharpe's 'Hand List' still unrepresented in American museums has been reduced to about 50.

Type Specimens.—The recent publication by W. E. C. Todd of the list of types in the Carnegie Museum and the completion by Dr. Ernst Hartert of a similar list for the Tring Museum has focused attention on the importance of such records. Types

constitute the basis of descriptions of new species and naturally are among the most highly prized possessions of any museum. The Carnegie Museum has about 300 types of birds, the Museum of Vertebrate Zoology about 100, the Museum of Comparative Zoology about 1100, and the U. S. National Museum about 1300. The Philadelphia Academy of Natural Sciences, in 1899, set the example of publishing a list of the types of birds in its general collection and some years later a list of those in the Gould collection of Australian birds. There are some prospects that this list will be brought down to date in the near future. The Museum of Comparative Zoology and the U. S. National Museum have for some years been working on lists of the types in their collections. Among foreign museums, lists of types in the Turin Museum were published by Count Salvadori in 1881, and of the Stockholm Museum by Dr. Lönnberg in 1926. The Museum in Stockholm has 283 types, that in Munich about 400, that in Turin about 480, the Berlin Museum about 2,000, and the Tring Museum about 2,000. Thus, in the ten museums above mentioned are nearly 9,000 types but detailed lists have been published for less than half this number. It is highly desirable that the larger museums, both in this country and abroad, which have not already done so, should publish information regarding the types under their charge. In some cases species are represented by more than a single specimen and such co-types are as important as the types. Apparently the Turin Museum is one of the few institutions which has listed its co-types as well as its types. In many cases, particularly some of the older species, the types have been lost and consequently are no longer available for study; in such cases topotypes or specimens collected at the original locality should be obtained whenever practicable. In view of the basic importance of such material it is somewhat surprising that more attention has not been given to the publication of information concerning types.

Papers of the Washington Meeting.—Apparently only about one-fifth of the 66 papers presented at the last annual meeting have appeared in print, nine in 'The Auk' and two elsewhere. Those which appeared in 'The Auk' include:

No. 2. Chapman's 'In Memoriam'—Louis Agassiz Fuertes.'

No. 7. Casey Wood's 'Plea for the Continuation of Coues' Bibliography of Ornithology.'

No. 25. Anderson's 'The Work of Bernhard Hantzsch in Arctic Ornithology.'

No. 29. Mrs. Naumburg's 'Further Remarks on Kaempfer's Collections in Eastern Brazil.'

No. 42. Bailey's 'Exhibition of a Hybrid Scaled \times Gambel's Quail from New Mexico.'

No. 46. Bowen's 'Nesting and Local Distribution of the House Wren (*Troglodytes aedon aedon*).'

No. 48. Friedmann's 'Origin of Host Specificity in the Parasitic Habits in the *Cuculidae*.'

No. 56. Bergtold's 'More Colorado Ducks.'

No. 59. Hellmayr's 'Ornithological Collection of the Zoological Museum in Munich.'

Papers published elsewhere include:

No. 8. Stiles' 'What Constitutes Publication,' in 'Science,' Vol. LXVII, pp. 471-478, May 11, 1928.

No. 13. Kendeigh and Baldwin's 'Development of Temperature Control in Nestling House Wrens,' in *Am. Nat.*, Vol. LXII, pp. 249-278, May, 1928.

DECEASED MEMBERS.

LEVERETT MILLS LOOMIS,¹ Fellow, aged 70, died at San Francisco, Calif Jan. 12, 1928.

NEWBOLD TROTTER LAWRENCE, Retired Fellow, aged 73, died at Antwerp, Belgium, Aug. 14, 1928.

HANS FRIEDRICH GADOW,² Honorary Fellow, aged 73, died at Cambridge, England, May 16, 1928.

PETER PETROVICH SUSHKIN,³ Honorary Fellow, died in his 61st year, at Kislovodsk, Caucasus, Russia, Sept. 17, 1928.

HARRY BALCH BAILEY,⁴ Founder and Corresponding Fellow, aged 75, died at Newport News, Va., Feb. 10, 1928.

JAMES EDMUND HARTING,⁵ Corresponding Fellow, died in his 87th year at Weybridge, England, Jan. 16, 1928.

¹ For obituary notice see 'Auk,' XLV, pp. 263-264, XLVI, pp. 1-13.

² " " " " " " pp. 538-539.

³ " " " " " " XLVI, p. 149.

⁴ " " " " " " XLV, pp. 264-265.

⁵ " " " " " " " pp. 265-266.

- MRS. ANNIE CONSTANCE MEINERTZHAGEN,¹ Corresponding Fellow, aged 39, died at Swordale, Ross-shire, Scotland, July 6, 1928.
- COUNT OTTO VON ZEDLITZ UND TRUTZSCHLER,² Corresponding Fellow, died in his 54th year at Varberg near Tofhult, Sweden, Dec. 4, 1927.
- WILLIAM LEON DAWSON,³ Member, aged 55, died at Columbus, Ohio, April 30, 1928.
- BRADSHAW HALL SWALES,⁴ Member, died in his 53rd year at Washington, D. C., Jan. 23, 1928.
- CHARLES PONS AIMAR, Associate, aged 54, died at Charleston, S. C., Dec. 1, 1927.
- GEORGE BENNETT,⁵ Associate, died in his 77th year at McGregor, Iowa, Aug. 18, 1928.
- JOHN BLISS BRAINERD, Associate, aged 67, died at Middlebury, Vt., Nov. 21, 1926.
- MRS. LIDIAN EMERSON BRIDGE, Life Associate, aged 69, died at West Medford, Mass., Oct. 22, 1928.
- HARRY ALVIN CASH, Associate, died in his 58th year at Providence, R. I., Jan. 11, 1928.
- JOSIAH HUNTOON CLARK, Associate, died in his 55th year at Paterson, N. J., May 7, 1928.
- WARREN HANDEL CUDWORTH, Associate, of Norwood, Mass., aged 50, died Jan. 13, 1927.
- JOHN SMITH DEXTER,⁶ Associate, of Rio Piedras, Porto Rico, died in his 43rd year, Apr. 19, 1928.
- HENRY LANE ENO, Associate, aged 57, died at Montacute House, County Somerset, England, Sept. 10, 1928.
- ROBERT LEROY JACKSON, Associate, aged 25, died at Ohio, Ill., Oct. 18, 1928.
- ALBERT LANO,⁷ Associate, died in his 69th year, at Fayetteville, Ark., July 3, 1928.
- JOSEPH LYNCH, Associate, died in his 65th year, at Perth Amboy, N. J., Dec. 23, 1926.
- FRANKLIN H. MOSHER, Associate, of Melrose Highlands, Mass., died Apr. 18, 1925.
- MISS LUCY FITCH MYERS, Associate, aged 76, died at Poughkeepsie, N. Y., Oct. 30, 1928.
- KARL ALBRECHT PEMBER,⁸ Associate, aged 48, died at Tucson, Ariz., Jan. 11, 1928.

¹ For obituary notice see 'Auk,' XLV, p. 539.

² " " " " " " p. 418.

³ " " " " " " p. 417.

⁴ " " " " " " pp. 264, 321-329.

⁵ " " " " " " p. 540.

⁶ " " " " " " p. 540.

⁷ " " " " " " pp. 540-541.

⁸ " " " " " " p. 268.

FRANK OTIS PILLSBURY, Associate, aged 75, died at Walpole, Mass., Aug. 16, 1927.

CHARLES SHELDON,¹ Associate, died in his 61st year, at Kedgemakoogee, Nova Scotia, Sept. 21, 1928.

MISS MARY IVINS TUPTS, Associate, of Lynn, Mass., died Oct. 28, 1928.

GEORGE ARTHUR WEBSTER, Associate, of Brattleboro, Vt., aged 63, died July 31, 1928.

GEORGE RIVERS WHITE, Associate, aged 71, died at Ottawa, Canada, Nov. 27, 1927.

WILLIAM AUGUSTUS WHITE, Associate, of Brooklyn, N. Y., died May 14, 1927.

MISS MARY ANGELINA WRIGHT, Associate, of Cambridge, Mass., died in her 79th year, Aug. 25, 1928.

LUTHER EVERET WYMAN,² Associate, aged 58, died at Los Angeles, Calif., Jan. 7, 1928.

¹ For obituary notice see 'Auk,' XLVI, p. 150.

" " " " " XLV, pp. 266-267.

GENERAL NOTES.

The Herring Gull (*Larus argentatus*) in the North Carolina Mountains.—In a conversation with my friend, Mr. Alan Nicholson, of Union, S. C., he told me that he had recently seen a specimen of a Gull shot near Montreat, Buncombe County, N. C.

I interviewed the taxidermist who had the bird, Mr. G. C. Joyner, and he kindly allowed me to examine it. The bird is an immature Herring Gull (*Larus argentatus*). Mr. Joyner told me that it was taken in October, 1925, by Horace Rees, on a small lake at Montreat. Mr. Rees shot the Gull as an unusual bird, and took it to Mr. Joyner for mounting. It was, however, never called for, due to the death of Mr. Rees, and so remains in the possession of Mr. Joyner.

Montreat is a summer resort in the Blue Ridge section of North Carolina, located eighteen miles east of Asheville. The lake, an artificial body of water, covering about two or three acres, is about 2600 feet above sea-level. Mr. Joyner informed me that there had been a severe wind and rain storm a day previous to the appearance of the bird, and he had himself seen it fly along the creek in front of his house, this creek being the outlet of the lake.

I have examined the range of the species in several ornithological books but can find no record of the bird having been taken, or recorded from the Blue Ridge Mountains. The occurrence there is, of course, purely accidental, but the circumstances connected with the record are indisputable and, I think, worthy of record. I am indebted to Mr. Nicholson for calling the bird to my attention, and to Mr. Joyner for allowing me to examine it and furnishing me with the information relative to its capture.—ALEXANDER SPRUNT, JR., *Curator of Ornithology, Charleston Museum, Charleston, S. C.*

Forster's Tern in Massachusetts.—Dr. Winsor M. Tyler and I, in looking over a flock of Common Terns on the beach at the mouth of the North River in Scituate, Mass., September 23, 1928, found in it two Forster's Terns (*Sterna forsteri*). I had been introduced to this species by Mr. A. C. Bent at Chatham, Mass., September 1, 1924, and had no difficulty in recognizing it on meeting with it again. One of the two birds had the crown whiter and the blackish stripe through the eye much more sharply defined than the other. This bird was noticeably lighter in general coloration above than the Common Terns of the flock, and, so far as we could see, showed no dark markings on the nape. It was probably, therefore, an adult in winter plumage, while the other was doubtless an immature in first winter plumage. Both, characteristically, stood higher on their feet than the Common Terns. We had these two birds under observation with our binoculars at rather close range for some

time, both on the beach and flying—for the flock frequently took wing and alighted again—and we were fully satisfied with our identification. The apparent absence of any dark markings on the nape of one of the birds might suggest the possibility of its being a Trudeau's Tern, if that possibility were not almost too remote for consideration, Audubon's specimen of that South American bird obtained from Great Egg Harbor, New Jersey, in 1840, being still the only record for North America; but it seems probable that the absence of the dusky markings was apparent rather than actual and that an examination of the bird in the hand would have revealed them. At all events the darker of the two birds was undoubtedly a Forster's Tern, and there can be little doubt that both were of the same species. Forbush's 'Birds of Massachusetts' lists six records of Forster's Tern for the State, of which the Chatham bird referred to above is the last. The present, therefore, makes only the seventh record, but I suspect that the species may not be so rare on our coast as this would imply. It would be easy to overlook a bird or two in a large flock of Terns, old and young. In the present case, Dr. Tyler and I were deliberately looking for Forster's Terns when we found these two birds, first one and then, a few minutes later, the other.—FRANCES H. ALLEN, *West Roxbury, Mass.*

Sooty Tern (*Sterna fuscata*) on Long Island, New York.—On September 19, 1928, Long Island was hit by an unusually severe storm. This was probably the tail end of the Florida hurricane that a few days before caused so much damage on the southern coast and which followed the coastline closely up as far as Long Island. It rained the entire day and this was accompanied by very strong winds. The average temperature was about 58°. The storm had subsided by the next morning, as it was clear with very light south wind and with a temperature of 68°.

On September 21, I made a trip to the ocean beach on the south shore of Long Island looking for any stray birds that might have been driven north by the storm. It was early in the morning on this day that I found an adult Sooty Tern lying dead upon its back, about one mile east of the Moriches Coast Guard Station. It was near to the one road that runs parallel with the beach and about 400 feet from the ocean front. I noticed it as I was driving along in my car. It appeared to have been dead at least one day and probably died during the storm on the 19th. It was very emaciated, weighing only four ounces in the flesh. The two outer tail feathers are 5.25 inches long and are black. The outer tail feathers marked with white had probably been molted. The length is fifteen inches and wing-spread from tip to tip thirty-four inches. Upon skinning the specimen I found that there were no marks of any wounds or injury upon it and from all appearances it succumbed from the effects of the storm. The skin is now in my collection.

The only two former records for Long Island are: September 13, 1878, and September 18, 1883.—LEROY WILCOX, *Speonk, L. I., N. Y.*

Sooty Tern on Staten Island, N. Y.—On September 23, 1928, Messrs. Peterson, Muller and Kessler, members of the Bronx County Bird Club, picked up a dead Sooty Tern in the heart of the salt marsh at Oakwood Beach, Staten Island, N. Y. The bird was an adult and was in good condition. It was undoubtedly blown up by the West Indian hurricane which touched upon the New York region a few days before. Mr. Ludlow Griscom in his "Birds of the New York City Region" lists the Sooty Tern as of accidental occurrence, the last record being September 18, 1883. The specimen that we found was presented to the American Museum of Natural History.

We learn that another bird of the same species was picked up on the Connecticut shore on September 21.—VICTOR R. MULLER, *New York City*.

Pomarine Jaegers and Phalaropes off shore in November.—Several persons who attended the 1928 A.O.U. meeting at Charleston, S. C., travelled between that city and New York by sea, leaving New York Nov. 17 and arriving Nov. 19; leaving Charleston Nov. 25, arriving Nov. 27. On the south bound trip (warm, fair weather with moderate breezes) the most interesting sea bird encountered was the Pomarine Jaeger (*Stercorarius pomarinus*), a species which unlike the Parasitic is rare or irregular inshore near New York. At daylight on Nov. 18 the first ones were seen. Throughout the morning some dozen birds or more (maximum of 20 counted), were following the ship's wake, their flight and behavior very much like that of the few Herring Gulls, also following. From time to time we would pass scattered birds that generally swung into the wake, and 30 would be a conservative estimate of the total number seen. The last one was seen just prior to passing south of Diamond Shoal Lightship early in the afternoon. The following morning close inshore, approaching Charleston, a single distant Jaeger, thought to be this species, was seen. The only Parasitic Jaegers of the trip were one young bird that almost surely was such (Nichols) just outside of New York, Nov. 17, and a probable bird of this species early next morning. The Pomarine Jaegers following the ship were light and dark birds, and others, doubtless young, had all dark breasts and white bellys. Very few of them had the noticeably exerted tail feathers.

On the northbound trip a cold north-west blow was encountered off the Carolina Capes Nov. 26. This change in weather, correlated with the advance of the season, may have accounted for a difference in sea birds met with; at least for a scarcity of Jaegers. A single Jaeger, Nov. 25, and not more than 5 or 6 (Pomarines) Nov. 26, were the only ones noted. On the other hand an immature Kittiwake (Miller and Chapin), a species missed on the earlier trip, was seen a little north of the lightship Nov. 26; and about 15 adults from off Barnegat Light to Atlantic Highlands, Nov. 27. The occurrence of Phalaropes is of especial interest in view of the question as to whether the Red Phalarope is a regular transient or even winter

visitant south of the Carolina Capes (see Bent, 1927, Bull. U.S. Nat. Mus., CXLII, p. 13). Whereas none were seen southbound, single Phalaropes and small flocks totalling about 20 birds were observed late in the afternoon of Nov. 25. None were noted on the 26th, but 4 or more birds were seen on Nov. 27, off New Jersey. They were in all probability the Red Phalarope. Two individuals which flew on ahead and lighted on the water again Nov. 25, could be studied at sufficiently close range for a satisfactory estimate of size (about that of a Pectoral Sandpiper) as well as color (Du Mont), and the others seemed identical.—J. P. CHAPIN, P. A. DUMONT, W. DEW. MILLER, J. T. NICHOLS, *American Museum Natural History*, N. Y.

Lesser Snow Goose (*Chen hyperborea hyperborea*) in Quebec.—On May 14, 1928, I shot a Snow Goose on the north shore of the St. Lawrence River, across from L'Ile aux Grues, Quebec. Mr. Frederic H. Kennard was here a short while ago and identified it as the Lesser Snow Goose (*C. h. hyperborea*).—GUS A. LANGELIER, *Cap Rouge, Quebec*.

The Blue Goose (*Chen caerulescens*) at Virginia Beach, Va.—On November 14, 1928 on the extensive flats at the head of Back Bay, Virginia Beach we saw two Blue Geese (*Chen caerulescens*). They were clearly made out through our 8 power glasses with a flock of approximately 2000 Greater Snow Geese. There was also one Canada Goose, but a great number of the last were feeding in the Bay. The occurrence of the Blue Goose on the Atlantic Coast is sufficiently unusual to warrant recording here.—CHARLES W. TOWNSEND, *Ipswich, Mass.*, and CHARLES L. BULL, *Oradell, N. J.*

The Greater Scaup Affected by Lead Poisoning.—On April 29, 1928, a shipment of ten Greater Scaups (*Marila marila*) was received at the University of Michigan Museum of Zoology through the coöperation of the State Department of Conservation. The ducks had been found sick on Houghton Lake, Michigan, and sent to the Department by Roy Carr. When they reached me only four were still alive. Post-mortem examination showed the symptoms of lead poisoning and in the stomachs were large amounts of lead shot. Most of the stomachs contained forty to sixty pellets of lead and in one there were eighty pellets. Some pellets had been reduced by attrition almost to the vanishing point, but many were fresh and unworn. In several stomachs there were 3.5 to 4 grams and in one case 5 grams of lead. The condition of the internal organs was as described by Wetmore (U. S. Dept. of Agric. Bull. 793, 1919). In addition I noticed that the breast muscles had wasted away to very thin sheets. The living birds were very weak and suffered recurring convulsions followed by spells of excessive weakness. Their sense of balance was also affected and they could not sit upright either in the water or on land. The eye-lids did not droop until just before death, but the iris flickered almost constantly. The poisoning apparently did

not affect their appetites, for the crops and stomachs of most of them were filled with the remains of water plants.

In reply to a letter of inquiry, Roy Carr sent me further details. He writes: "as soon as the ice melted (about April 5 to 10) the ducks started coming. I saw some sick ducks just a day or two afterward. Later when more came I found them dying. I never saw any get well. It would be hard to say how many died, but I saw twenty in three blocks of shore and I heard that they were about like that in many places. There were all kinds of ducks here, but only the Bluebill seemed to be affected. I have noticed this before but never so bad as this year. It is always in the spring, never in the fall. These ducks must get the shot in some other lake, as our shooting grounds were still covered with ice."

In 1919, Wetmore summarized the occurrence of lead poisoning in a Swan, a Godwit, and three species of Ducks. He apparently overlooked Warburton's record (Condor 19, p. 141) of a single Greater Scaup poisoned by lead shot in Puget Sound. This is the first instance of lead poisoning among Michigan birds that has come to my attention. It is also noteworthy that all ten ducks received here were Greater Scaups, a species supposedly rather rare in the State as compared with the Lesser Scaup.

The problem of lead poisoning among birds is likely to become a serious one and future occurrences should be carefully studied and recorded.—
JOSSELYN VAN TYNE, *Museum of Zoology, University of Michigan.*

White Pelican in Chester County, Pennsylvania.—On September 24, 1928, a White Pelican (*Pelecanus erythrorhynchos*) was captured alive at Kurtz's Dam, Valley Township, Chester County, Pennsylvania, by Messrs. George Richmond and J. W. Shank, Jr., of Coatesville, and turned over to State Game Protector J. E. McCannon. The bird had been badly wounded in one leg and died during the night. After being forwarded to this office for examination it was turned over to the Reading Public Museum. It had a wing-spread of nearly 105 inches and weighed only $7\frac{3}{4}$ pounds. The somewhat grayish lesser coverts probably indicated immaturity. The open wound on the leg appeared to be the result of a blow, rather than of a bullet. Perhaps the bird was injured and driven northward during the recent hurricane.—GEORGE MIKSCH SUTTON, *Game Commission, Harrisburg, Pennsylvania.*

American Egret at Conneaut Lake, Pennsylvania.—On the morning of August 24, 1928, while fishing at Conneaut Lake, Crawford County, Pa., I saw the American Egret (*Casmerodius albus egretta*). The morning was quite hazy and with the dark background of the shore and the gray atmosphere the white bird made a most beautiful picture.

The Egret was seen near Wolf Island close to the west shore of the lake. I saw it but a few minutes, observing through my binoculars before it arose into the air and flew toward Conneaut Marsh, southeast of the lake. I hunted around the lake for several days afterward but did not see the bird again.—STANLEY J. SEIPLE, *Greenville, Pa.*

American Egret at Seneca Falls, New York.—As so few records of the American Egret (*Casmerodius egretta*) are to be found for New York, it seems worth-while to note the occurrence of this species on July 29, 1928, at Seneca Falls, N. Y., at the southern border of the Montezuma Marsh. The bird was observed along the border of Cayuga Lake while I was bass fishing, in company with LeRoy Garnsey and Gertrude Garnsey. It appeared quite fearless and allowed a close approach by boat before taking flight. Its large size, entire white plumage and black legs and feet served to make the identification positive.

Foster Parker, a veteran bird man of these parts, has a specimen of this Heron in his collection, taken from the Montezuma Marsh, but no data attached to the specimen. It was taken a good many years ago.—
WILLIAM J. HAMILTON, JR., Cornell University, Ithaca, N. Y.

Great White Heron and Roseate Spoonbill Near Daytona Beach, Florida.—On January 23, 1927, while visiting the Brown Pelican rookery at the southern end of Mosquito Lagoon, I saw a Great White Heron (*Ardea occidentalis*). The bird was standing not far from a Ward's Heron, and it was the consensus of opinion of four of us that the two birds were of about the same size, with the possibility that the White Heron was a bit larger. On October 16, 1928, while riding along the ocean beach north of Ponce de Leon (Mosquito) Inlet, I saw another Great White Heron. I followed it, in flight several miles up the beach until a Ward's Heron was flushed, thus giving me the two in the air at once, and for an instant in juxtaposition. Again a comparison by myself and another observer agreed that the two were of about the same size, with the possibility that the white bird was a shade smaller. In neither this instance nor the former were we able to get close enough (with rather poor light conditions) to ascertain definitely the bill color. But it was neither bright yellow nor blackish and hence checked fairly well with the "greenish-yellow" that it is supposed to be. These are the only two records for the Great White Heron along this part of the coast so far as I am aware. Bent (Bulletin 135, U. S. National Museum) publishes no records north of the keys, and states that this heron is non-migratory.

Early in June, 1927, a badly mangled specimen of the Roseate Spoonbill (*Ajaia ajaja*) was brought to the local pier museum by a fisherman, who stated that while running his truck down to the Indian River east of Oakhill, this bird rose from a marshy tract at the side of the road, hit the car, and was run over by the wheels. He put the bird on top of ice in a barrel of fish and thus it came to Daytona Beach, some thirty miles north of where it was taken. While this species is supposed to wander rather widely after the breeding season, this is the first record I have for it in eastern Florida, Atlantic section, in the course of some twenty years of residence here.—R. J. LONGSTREET, Daytona Beach, Florida.

Some Rail Traits.—At about noon on June 11, 1928, I observed a Florida Clapper Rail (*Rallus crepitans scotti*) with a fiddler crab (*Uca* sp.) in its beak, walking along the bank of a drainage ditch through a marsh at Apalachicola, Franklin County, Florida. I stood scarcely fifteen feet away and watched while he carried the crab and presented it to a smaller bird with distinctly lighter underparts, presumably the female. She in turn gave the tid-bit to a small black chick which came out of the grass. The chick seized it eagerly and tried to swallow it but without success and dropped it to the ground. The female picked it up and once more offered it to the chick, which tried again to swallow it but in vain. After this was repeated several times the female became alarmed at my nearness and gave a warning cluck upon which the chick disappeared into the grass. The female then swallowed the crab.

The male had fed down the bank of the ditch and the female now turned upstream, frequently giving a sharp cluck and bobbing her tail. She soon caught a small minnow which she carried about for two or three minutes in indecision, passing back and forth in front of where the young were hiding. She finally swallowed the minnow and then retreated into the grass. In the meantime the male had crossed to my side of the ditch and allowed me to approach within ten feet before he flew back again.

On June 26, near the same place I saw four baby rails, still black and about two-thirds the size of their mother. They were surprisingly tame and allowed me to approach quite near. One of them readily swam the drainage ditch which was about eight feet wide and the other three hid in the grass. When I came near they gave the characteristic rail call.—FRANK F. GANDER, *O' Rourke Zoological Institute, Balboa Park, San Diego, California.*

A Dead Clapper Rail Found at Lexington, in the Valley of Virginia.—Early in November, 1928, Miss Emily Penick, of Lexington, Va., told me of having seen what she thought was a Woodcock caught in a fence and dead on a country road three miles from Lexington. I thought little of it until on passing the place on November 9 I examined the bird. I saw at once that it was a rail, but it was strange to me and so dishevelled that I could not identify it with certainty. The bird was caught in the abdomen on a hook on one of the upper strands of a barbed-wire fence and appeared to have beaten itself to death on the wires. The carcass was in bad shape, but the body was not mashed and the flesh was practically intact. It was not at all decayed, had no odor, and was hard and dried out. The feathers were very much rumped and soiled with dust from the road, and rain, but very few of them were lost. How it stayed there for at least a week in plain sight, without having been eaten by a vulture, I do not know. The spot was on a rather unfrequented country road, some three hundred yards from where the road left the Lee Highway. At the point the road passes through an upland pasture. No water of any consequence is anywhere near, nothing more

than an almost dried-up cattle pool two hundred yards away and a small stream across the highway.

On taking the bird home and giving it a more careful examination, it appeared to be a Clapper Rail (*Rallus longirostris crepitans*). I thought it worth while to send the specimen to Dr. C. W. Richmond at the National Museum, asking him if it could be a King Rail. It seemed so utterly impossible for it to be a Clapper Rail that I did not dare to suggest it. I quote a part of Dr. Richmond's reply: "The rail was duly received and Mr. Riley of this office identifies it as a Clapper Rail. I have also examined it and there seems to be no doubt about it. The particular point is, how did it get there? In these days of automobiles, it is possible that some gunner may have shot the bird on the coast and later discarded it where you found it." Now just this possibility had at once occurred to me when I began to come to the conclusion that it was a Clapper Rail. In the case of the finding of a bird already dead there is, of course, no way of disproving this possibility, but I can hardly believe this is the answer. For one thing, if the bird had been brought all this distance from the coast (about two hundred miles) and then thrown away, it would seem to me that the flesh must have become badly putrid. Possibly the fact that the flesh was still there but so stiff and dried was due to the drying effect of the wind and sun while it was hanging so long on the fence. In the second place, it was on a country road where no through travel passes. I have inquired through the State Game Commissioner, Major Willis Robertson, who lives in Lexington, and he tells me that no local hunters have been to the coast this fall. It is true that the Lee Highway, by which some hunter from a distance might have been going through, is only three hundred yards away. But the bird was hanging at least four feet from the ground and it does not seem likely that a dog or other animal could have carried it there. The body showed no signs of having been partially eaten. Then, too, the bird was not hung on the fence but firmly caught. It might have been taken there from the highway by some person and hung up, but it was so firmly hooked that I had some difficulty in loosening without tearing it badly. It gave every appearance of having been hooked in flight and having fastened itself more firmly by its frantic beating.

During the latter part of October and the first days of November we had cold and windy days, but there were no peculiar weather conditions that would help to explain the presence of the bird. There had been, I understand, rough weather on the coast. Fifteen miles from here the James River breaks through the Blue Ridge Mountains by the Balcony Falls water-gap on its way to the coast, thus furnishing a water line from the coast with no mountains to cross.

I am making no positive claims to a record and the unusual nature of the report certainly justifies all possible skepticism.—JAMES J. MURRAY, Lexington, Virginia.

Northern Phalarope (*Lobipes lobatus*) in Pennsylvania.—On August 26, 1928, following a storm, an immature Northern Phalarope visited Rothermel's Dam, at Moselem, Berks County, Pennsylvania.

It was quite tame, and swam or pushed its way among the masses of pond-weed that abound in the dam while I watched it at a range of less than forty feet, noting every detail of plumage and action.

It appeared to pick up minute insects or water-creatures of some sort, as it spun about in half-turns, peering down into the water, and darting its needle-like beak at its prey.

The last previous record of the species from this vicinity is a specimen in the same plumage taken thirty-eight years ago and now in the collection of the Reading Public Museum.—EARL L. POOLE, *Reading Public Museum, Reading, Pa.*

Breeding Range of the Northern Phalarope (*Lobipes lobatus*).—On July 27, 1906, Dr. Glover M. Allen and I found four Northern Phalaropes acting as if they had young at a fresh-water pool in the center of Great Caribou Island, near Battle Harbor, Labrador, at the entrance of the Strait of Belle Isle (Birds of Labrador, Proc. Boston Soc. Nat. Hist., 1907, p. 346). Twenty-two years later, on July 23, 1928, I again visited this spot and was greeted by two Northern Phalaropes that rose from a pool and flew about me complaining. The female soon departed, but the male continued to show great anxiety and nervousness during my presence there. He would circle about within fifteen feet of me and then alight on the water of the pool, all the time uttering scolding notes—sharp *quips* and *twits* or double notes, *get-it* or *twit-it*. After swimming about nervously on the water for a moment he would rise again and fly around, me still scolding. I made search for young or eggs, which I felt sure were concealed nearby, but failed to find any. On my departure, the male accompanied me, still complaining, for about fifty yards but then left me.

Two hours later I returned and found both birds in the pool. The slightly larger size and brighter colors of the female served to distinguish her from the male. On this occasion the male acted as solicitously as before, constantly complaining, but the female was silent and apparently indifferent. She was actively occupied, however, in the pursuit of game, swimming about the pool and darting at insects on the surface. Every now and then she would quickly thrust her head and fore part of the body under water, an action which resulted in the tipping up of her tail, much like the action of a tipping duck. She secured in this way several large beetles and a worm. After about fifteen minutes she flew silently to the adjoining pool, the male after her, but he soon came back to scold me and the female disappeared. After I had left the pool, I saw the pair flying off and circling together.

The region is typically arctic. One pool where this performance took place was about forty yards in diameter, and the other, close beside it,

was a dozen yards long by five wide. The pools were set in deep sphagnum and other mosses and lichens, sedges and grasses, curlew berry and bake apple and Labrador tea, creeping willows and birches. Nowhere on the island did spruces, balsam firs or larches rise more than two or three feet from the ground and then only in sheltered spots. This same arctic character extends along the whole eastern coast of Labrador. Henry B. Bigelow, who explored the coast from Battle Harbor to Nachvak, says of this bird (Auk XIX, 1902, p. 28): "Breeding in almost all the suitable marshes." Mr. Oliver Austin, Jr., tells me he has found definite evidence of this bird breeding as far south as the north shore of Hamilton Inlet, and he has found it present in summer south of that point at various places along the coast. The southern coast of the Peninsula as far west as Natashquan is also Arctic in character, and Audubon found these birds and their nests there in 1833. I have never found any evidence of their breeding on this part of the coast at the present day.

The "American Ornithologists' Union Check-List," 1910, gives the breeding range of the Northern Phalarope on the eastern coast only as far south as northern Ungava, and Mr. Bent in his "Life Histories" extends the range in Labrador to Nain and Hopedale. The evidence I have given above extends its breeding range considerably farther to the south.—CHARLES W. TOWNSEND, *Ipswich, Mass.*

Buff-breasted Sandpiper at Brigantine, New Jersey.—On September 9, 1928, while looking for waders in a fresh-water pool about an acre in extent and a short distance back from the beach at Brigantine, N. J., I obtained a fine view of six Buff-breasted Sandpipers. As I neared the pool from the north, two small long-winged shore-birds sprang up from a rough puddle-spattered area. They dashed rapidly away, showing dark-bordered white wing linings. As they flew, I could hear a series of weak twitters. The under wing pattern and notes were different from those of any wader with which I was acquainted, so for a moment was greatly disappointed at not being able to obtain a better view of the birds.

Training my glasses on the spot from which they had flown, I soon saw a small brown dove-like head peering over the top of a mudlump. Presently the bird walked out in full view and was immediately followed by another one. Their small heads, thin necks; their brown and buff plumage and their yellowish brown legs told me almost at once that they were Buff-breasted Sandpipers. Scarcely had I secured a good look at them when they flew and settled among a mixed flock of shore-birds some forty yards distant. The striking under-wing pattern which I had noticed on the two birds first seen was also shown by these birds.

When I approached the flock which the rare visitors had joined, they could not be found. Apparently they had flown again while I was "watching my step." During the next hour or two I studied the waders in and about the pool and in all recorded nineteen species. This list included

thirty Willetts, six White-rumped Sandpipers, and one Baird's Sandpiper.

Returning to the point where I had first seen the Buff-breasted Sandpipers, I saw six birds flying in. The four had returned with two others. They immediately "froze" in a half squatting position. One slowly turned his head, looking up as if expecting an attack from above. Soon they relaxed and while four started to feed in a rather indifferent sort of manner, the other two bathed. This was not a vigorous process as is the habit of most waders. One dipped the rear half of his body by teetering exactly like a Spotted Sandpiper. The other one just wet the under surface of his body by a series of squats. The wings were fluttered without touching the water. Both bathers seemed to fear disarranging their immaculate brown feathers. The birds moved about on the ground in a very deliberate manner, their folded wings extending just beyond their tails. Suddenly one uttered a short throaty "err," "err." Immediately alert, they all took flight, settling on the Brigantine Golf Course, about fifty yards away. Here two of them indulged in the curious performance of stretching one wing straight up over the back. Possibly the bathers were pluming themselves. Scattering they began to feed in the short grass—their backs just showing. Now and then their heads were raised for danger signs. I moved toward them but had taken only a few steps when they flew, darting swiftly inland. As they went, I heard weak twitters again.

From the viewpoint of the field student, this Sandpiper when on the ground could aptly be described as a diminutive Upland Plover brown and buff-colored from the base of his bill to the tips of his toes. In flight, the underwing pattern is quite distinctive. These characteristics are possessed by no other shore bird, I believe.—JULIAN K. POTTER, *Collingswood, N. J.*

Black-necked Stilt (*Himantopus mexicanus*) again in South Carolina.—On August 16, 1928, I secured a specimen of the Black-necked Stilt (*Himantopus mexicanus*) in an old rice field bordering the Cooper River, South Carolina. The bird was a young male.

The Stilt was with a flock of Least Sandpipers (*Pisobia minutilla*) and Semipalmated Sandpipers (*Ereunetes pusillus*) and a few Yellow-legs (*Totanus flavipes*).

So far as I can ascertain, this is the first record for the Stilt in South Carolina in nearly fifty years. Mr. Arthur T. Wayne in his "Birds of South Carolina," p. 43, tells of seeing several pairs of Stilts on Sullivan's Island in May, 1881; judging from their actions, he was sure the birds were breeding.—E. VON S. DINGLE, *Huger, S. C.*

The Possibility of Tularemia in the Ruffed Grouse.—An article on "Tularemia in Birds" occurs in the 'Journal of the American Medical Association' for May 26, 1928. It seems to be a condensation of an

article by R. G. Green and E. M. Wade, of the Minnesota State Board of Health, in 'Proceedings of the Society for Experimental Biology and Medicine,' April, 1928, which I have not seen. In speaking of the occurrence of tularemia in rabbits, they say that the decrease in the number of wild rabbits and of the Ruffed Grouse has occurred simultaneously in Minnesota during the past four years and that cases of tularemia in humans have appeared at the same time. Because of these facts and the discovery of tularemia in the blood of many rabbits, they think that the decrease in the Ruffed Grouse may be due to the same cause. They have demonstrated that the rabbit tick is an important carrier of tularemia and that the parasite is found also in game birds. They have shown that the Ruffed Grouse can be experimentally infected with the *Bacterium Tularense* as regularly as the rabbit, and think that the parasite may carry the disease from rabbits to the birds. Although no cases of human tularemia have been reported as the result of cleaning grouse, they think it probable that the grouse may be a source of infection and feel that the indications justify a careful search for tularemia in grouse dying from disease.—J. J. MURRAY, *Lexington, Virginia*.

On *Dendragapus obscurus obscurus*.—The separation of the grouse of the genus *Dendragapus* into two groups has been considered for some time past. The principal feature that separates these two groups is the gular hooting sac, together with the volume of sound that is emitted from it.

In the males of the coastal group the skin of the hooting sacs is specialized and of a deep yellow color, the hooting is powerful and with great carrying power.

In the interior birds of the *richardsoni* type this skin is only slightly specialized and flesh-colored, deepening to purple when in display; the hooting is feeble and barely audible.

The crux of the question lies in the determining features of the type form *obscurus*.

A recent paper on this bird by Mr. M. P. Skinner in the 'Wilson Bulletin' for December, 1927, sheds no light on the subject except that the gular sacs are said to be "orange." If this was the case *obscurus* would become the type of the coastal group; that it is an error is proved by two fresh specimens of *obscurus* with color notes which I have recently received through the kind offices of Mr. J. Stokeley Ligon, of the State Game and Fish Department of New Mexico.

These birds were collected by Mr. Ligon on the mountains near Santa Fe (Sangre del Christo range). Taken on May 7, 1928, the male exhibits the maximum development of the hooting sacs. These are of the *richardsoni* type, purplish flesh color and only slightly carunculated, exactly as in a *richardsoni* male taken a few weeks later at Okanagau, British Columbia.

This negatives the different accounts in which *obscurus* is said to have

orange sacs, probably the deep yellow "combs" over the eyes have led the observers astray.

Mr. Ligon also informs me that the hooting is only audible to a distance of about forty yards. These birds from New Mexico are almost identical in color with birds from extreme northern British Columbia, the subspecies *flemingi*. Only the broad pale gray tail band separates them, this band in *flemingi* and *richardsoni* being dark gray only slightly paler than the rest of the tail and sometimes almost indistinguishable from it.

The New Mexican birds, however, have only eighteen rectrices against twenty in *richardsoni* and *flemingi*. But for this discrepancy there should be no question in according full specific rank to the two groups. Birds of the *richardsoni* (interior) type average twenty rectrices, of the *fuliginosus* (coastal) type eighteen.

The following is the number of rectrices in forty birds with complete tails in my own collection, all birds with moulting or incomplete tails being rejected.

Subspecies	Number of rectrices						Specimens
	16	17	18	19	20	22	
<i>richardsoni</i>					15	1	16
<i>flemingi</i>					2	1	3
<i>obscurus</i>			2				2
<i>fuliginosus</i>			4				4
<i>sitkensis</i>	1		10	1			12
<i>sierrae</i>			2				2
<i>howardi</i>			1				1
							40

While the tails of the pair of *obscurus* from New Mexico agree with the average of birds of the *fuliginosus* type (*fuliginosus*, *sitkensis*, *sierrae* and *howardi*) in the number of rectrices and the presence of a light-colored tail band at the tip, the shape of the individual feathers and the extent and character of the tail band is more in accord with *richardsoni* and *flemingi*.

On the whole the arrangement already proposed by Swarth with *richardsoni* and *flemingi* as subspecies of *obscurus* and *sierrae*, *howardi* and *sitkensis* as subspecies of *fuliginosus* seems to represent the logical conclusion of the question.

Dendragapus obscurus obscurus (Say).

Dendragapus obscurus richardsoni (Douglas).

Dendragapus obscurus flemingi Taverner.

Dendragapus fuliginosus fuliginosus (Ridgway).

Dendragapus fuliginosus sierrae (Grinnell).

Dendragapus fuliginosus silkensis (Swarth).

Dendragapus fuliginosus howardi (Dickey and van Rossem).

Much additional work is required before the ranges of the seven forms can be exactly defined. The separation of the bird inhabiting Vancouver Island may be warrantable, but first the question of dichromatism in the females, giving a gray and a rufous phase, must be settled.—ALLAN BROOKS, Okanagan Landing, B. C.

Rare Michigan Records. *Numenius hudsonicus*.—HUDSONIAN CURLEW.—A fine adult male, Hudsonian Curlew, was taken at Whitefish Point, Chippewa County, on September 24, 1928, by Miss Curren Hawkins, and sent to the Museum in the flesh. This species has never been common in Michigan, and authentic records are few. The last spring record was on May 30, 1925, when an adult bird was taken at Newberry, Luce County, and sent to the Museum. This species occurs as a rare migrant in Michigan.

Pelecanus erythrorhynchos. WHITE PELICAN.—An immature male was taken at Oscoda by fishermen on September 25, 1928. It was in a very poor flesh when sent to the Museum, where it was made into a study skin.

An adult bird was taken alive near Muskegon, Muskegon County, on September 22, 1928, and is now in the John Ball Park Zoo at Grand Rapids. Mr. R. L. McGrady was casting for muskellunge at Mona Lake, when this bird flew in front of and near him, and was caught "on the wing" by the hooks of his bait. While there are a number of state records for this species, it only occurs as a straggler in Michigan.

Falco columbarius. PIGEON HAWK.—On October 17, 1928, an adult female was taken near Muskegon (in that County) by Frank Antisdale, who sent it in the flesh to the Museum of Zoölogy. On September 16, the writer collected a fine male at "Point Lookout," Arenac County. This species seems to follow the Lake Shore beaches, usually during the fall migration of small birds in September and October. In a large series in our collection there is but one Spring record, that of April 30, 1918, in Berrien County, when the writer collected a beautiful adult male on top of a high Sand Dune. Since that date the species has not been seen by the writer until October 17, 1928, but it no doubt occurs rarely in the fall migration. The only record of its occurrence in any numbers was in 1915 on Charity Island, Saginaw Bay, when the writer saw a dozen from September 9 to October 11, and collected nine of them, five females and four males.—NORMAN A. WOOD, Museum of Zoology, University of Michigan, Ann Arbor, Michigan.

Lewis' Woodpecker in Rhode Island.—On November 16, Mr. Jeremiah Triggs, superintendent of Roger Williams Park, brought in to me an adult Lewis's Woodpecker (*Asyndesmus lewisi*) which he took away

from a boy who had just shot it in scrub oak on the Obadiah Brown farm at Mount Pleasant, a suburb of Providence. The boy pointed out to Mr. Triggs the mate to this bird, which was flying about in the vicinity. So far as I know this is the only record of Lewis's Woodpecker in Rhode Island.—WILLIAM L. BRYANT, *Park Museum, Providence, R. I.*

Red-headed Woodpecker in New Mexico.—On July 16, 1927, near Espanola, Santa Fe County, New Mexico, Mr. C. D. Bunker, of the University of Kansas Museum, and I flushed a Red-headed Woodpecker (*Melanerpes erythrocephalus*) from a roadside and it alighted on a telegraph pole where we got a good view of it.

In the latest A. O. U. 'Check-list' this species is listed as casual in New Mexico. On three previous collecting trips to north-central New Mexico I had been alert to see one of these birds, but saw none until that year. Mr. Bunker and four assistants spent the months of June and July, 1928, collecting near El Rito, New Mexico, but no Red-headed Woodpeckers were seen.—DIX TEACHENOR, *Kansas City, Missouri.*

Yellow-bellied Sapsucker Winters in Brookfield, Mass.—There was a snow storm on January 21, 1928. The next morning I noticed a commotion outside my window and upon investigating found an excited Starling on top of my suet pole which was then firmly imbedded in the snow. This Starling was making angry thrusts at a large woodpecker that kept on steadily climbing the pole. This was such an unusual state of affairs that the Starling soon flew away in nervous haste while the newcomer remained for a substantial meal. Thus I was given a fine opportunity to study the bird. Its breast was a uniform mouse gray color, the back was yellowish brown and black, suggesting at first glance a Flicker; but the general size and shape of the bird, together with the brownish red forehead and the prominent white longitudinal patch on the black wing coverts, proved it to be a young Yellow-bellied Sapsucker (*Sphyrapicus varius varius*).

During the latter part of January, February and early March the Sapsucker came regularly several times a day for suet and bullied all my customary winter boarders. It also fed in the trees of our yard and the neighborhood, often tearing large pieces of bark from the fruit trees. Its favorite trees were a Crabapple and a Maple, both of which had been badly damaged by an ice storm a few years ago. Long and frequent visits were made to these daily. At all times it was hostile to my Downy Woodpeckers, chasing them from tree to tree, but it seemed to have some respect for the Hairy Woodpeckers and would sometimes allow one to feed in the same tree.

I was much interested in watching the plumage change. By March 17, the last date on which I saw this Sapsucker, its forehead had become a brilliant crimson, the buffy markings on the back were growing white and the underparts had unmistakable signs of yellow.—CLARA EVERETT REED, *Brookfield, Mass.*

The Identity of *Trogon fulgidus* Gould.—In the third part of the first edition of his 'Monograph of the Trogonidae' Gould described and figured, under the name of *Trogon fulgidus*, a pair of birds, the identity of which has never been satisfactorily determined (Gould, op. cit., pt. 3, 1838, pl. 24 and text). The description and plate were both based on a pair of birds in the collection of Madame Goubie, of Paris, supposed to have come from Guiana. In the second edition of the 'Monograph of the Trogonidae' (pt. 1, 1858, pl. 3 and text) the species is redescribed and refigured from more recently received material. Birds that Gould attributed to this species "had of late years been sent to Europe in tolerable abundance from Venezuela whence many specimens were brought by the late Dr. Dyson; it occasionally arrives in collections from Bogota. . . ." Cabanis and Heine (Mus. Hein, pt. 4, 1863, p. 208-209) referred three adult males in the Heine collection, one from Venezuela and two from Colombia, to *Pharomachrus fulgidus* (Gould), but since that time Gould's name has passed into synonymy, being regarded as an immature stage of *Pharomachrus antisiana* (*Trogon antisiana* d'Orb., Rev. Zool. 7, 1837, cl. 2, pl. 85 and text). Recently while identifying a pair of *Pharomachrus* from Carapas, 5600 feet, in the mountains of northeastern Venezuela, I was struck by the fact that while they resembled *Pharomachrus festatus* Bangs (Proc. Biol. Soc. Wash. 13, 1899, p. 92, Chirua, Santa Marta, Colombia) in a general way, the male differed in having the upper tail coverts barely over-reaching the rectrices, and the antrorse loral plumes less developed. The type of *festatus* has the white area on the three outer rectrices conspicuously freckled with blackish along the shaft, but this is a character of immaturity, as Mr. Todd has been so good as to examine his fine series of adults from Santa Marta and writes me that "our male specimens of *Pharomachrus festatus* all have the white area of the outer rectrices solid save for a very slight and scarcely evident freckling of dusky along the shaft." The male from Carapas is also smaller, with a wing measurement of 172 mm. as against 183 for *festatus*. The Carapas female has the loral plumes less developed than two of that sex of *festatus*, but the tail coverts have been shot out so no comparison of that feature is possible. The wing of two females of *festatus* run 181, 183; the Carapas female 173. The greenish portion of the breast in the female of *festatus* is much less extensive. It is quite obvious that there are two forms to be recognized even though their limits are not known, a Santa Marta race characterized by slightly larger size, with greater development of loral plumes and with the central upper tail coverts produced for over an inch beyond the tail, as opposed to a form in the mountains of northeastern Venezuela of smaller size, less developed loral plumes and upper tail coverts but slightly prolonged beyond the end of the tail.

The birds described and figured by Gould in 1838 belong without a doubt to the eastern Venezuelan race; a comparison of the male and

female from Carapas checks practically feather for feather with the pair in the plate. The length of wing, 7 inches given in the description, is 6 mm. over the 172 mm. wing of the male from Carapas.

The bird of the second edition is probably the species now called *festatus*, the plate shows a bird with well developed loreal plumes although the upper tail coverts are not produced as far as in Santa Marta birds; the wing length of 7.25 inches corresponds to 184 mm. If the bird of the second edition is not typical *festatus* it is an intermediate that more nearly approaches that form than it does the one of northeastern Venezuela.

Under the circumstances I believe it is perfectly justifiable to resurrect Gould's name for the bird of northeastern Venezuela and to reduce *festatus* to subspecific rank. The two forms will therefore stand:

Pharomachrus fulgidus fulgidus (Gould)

Pharomachrus fulgidus festatus Bangs.—JAMES L. PETERS, *Museum of Comparative Zoology, Cambridge, Mass.*

Twig Gathering of the Chimney Swift.—In the October number of 'The Auk,' 1928, a review is given on page 530 of a paper on the Chimney Swift (*Chaetura pelagica*) by G. M. Sutton in 'The Cardinal.' Notation is made, as though the fact were not thoroughly substantiated, as to how this bird gathers twigs for nesting, whether by the feet or beak. For more than thirteen years I have continuously had occasion to closely watch this operation at close range. Near the house towers an immense dead elm where the Swifts of the village congregate to gather their nesting material—and do so *with their feet*. This conclusion is based on diligent observation and conclusive evidence. . . . A bird nears the tree, slackens its speed and when close enough lunges slightly and grasps at a twig, not always being successful in dislodging it the first try. I have seen twigs three-sixteenths inch through broken loose. I have seen a whole branch shake and quiver from the impelling force with which the bird attacks. On the average about every third try the bird is successful in getting its twig, and I notice that they invariably choose the tougher ones, from actual observations on nests constructed in our big old-fashioned chimney. I never yet observed a Swift grasp or carry a twig in its beak.—LEWIS O. SHELLEY, *East Westmoreland, N. H.*

Speed of Flying Hummingbird.—In early August I was motoring out to Chicago when, passing a long clear field beside the road, near Erie, Pa., I saw a Ruby-throated Hummingbird dart out and fly along beside me for about two hundred yards. I glanced at the speedometer, for the Hummingbird kept right along beside me, and discovered that I was going forty-five miles an hour. Of course there is no telling how fast the Hummingbird could have flown, and it may conceivably have been conscious of the automobile, but I think this gives a pretty fair idea of the average rate of flight of this species.—SAMUEL P. HAYES, JR., *South Hadley, Mass.*

The Scissor-tailed Flycatcher (*Muscivora forficata*) in South Carolina.—On the afternoon of November 6, 1928, near my camp on Edisto Island on the South Carolina coast, I saw a gray bird fly for a short distance in front of my car and alight on a fence post close beside the road. For a fraction of an instant I thought that it was a Mockingbird, an exceedingly common species, since it appeared about the size of a Mocker and showed white outer tail feathers as it flew. Almost instantly, however, I saw that the bird's tail was deeply forked, and before it lit on the fence post I knew that it was a Scissor-tailed Flycatcher (*Muscivora forficata*), a species never before recorded in South Carolina.

When the bird lit on the fence post I stopped the automobile about twenty-five feet from it and, without leaving the car, my wife and I studied the bird for some ten or fifteen minutes. It paid no attention to the automobile; the afternoon sun was behind us, so that the visibility was excellent; and at that short range, with the bird perching quietly on the top of the fence post before us, we could see every detail even with the naked eye, while my eight-power binoculars revealed plainly even the bristles at the base of the bill. The identification, therefore, was as absolute as though we had held the bird in our hands.

It was in immature plumage. Head, neck and breast were ash-gray, the wings darker, the tail lighter than the wings except the terminal portion, which was dark, almost black. In flight the outer tail feathers were seen to be white. The tail was very distinctly forked but not nearly so deeply forked nor so long as in figures of the adult bird. The forked appearance was very marked when the bird was in flight but only slightly noticeable when the bird was perching, and the whole tail was not much longer in proportion to the body than in the Mockingbird. There was much less red or pink than in the adult. The under parts were in general light-gray but as the bird perched broadside to us, a distinct rosy tinge was visible on the flank. Once or twice, when the wings were lifted momentarily, we could see a much brighter pink or red (once it appeared orange) under the bend of the wing. Though the bird frequently erected the feathers of its head, no crown-patch was visible and I am sure that there was none. The eyes were very black and bright and the bird had a decidedly handsome, alert, trim look in spite of the absence of conspicuous bright colors. The brilliant flash of color that we saw from time to time as it lifted its wings was all the more noticeable in view of its general grayness.

After studying the bird with the greatest care, I started the motor and we went ahead slowly. We were within fifteen feet of the bird before it flew with a graceful, gliding motion, first to another post farther ahead and then southward across the fields to light on a tall stalk about 100 feet away.

This record, the first for South Carolina, was made a short distance outside the west gate of the plantation yard of Mr. G. W. Seabrook Sr., on Edisto Island about 45 miles by highway southwest of Charleston.—HERBERT RAVENEL SASS, Charleston, S. C

Gray Kingbird Nesting Near Pensacola, Florida.—On August 7, 1927, I saw my first Gray Kingbirds (*Tyrannus dominicensis*) in this region—four birds, of which two were taken. As soon as I picked up the second specimen, I saw that it was a very young bird that had evidently left the nest only a few days before. An examination through binoculars of the remaining living birds showed that one of these, too, was a young bird. Nothing more was seen of the birds that year on their supposed breeding ground, but three were seen on August 31 and two on September 18, probably in migration, at a point several miles to the eastward, which was entirely unsuited to the nesting of this species.

On June 9, 1928, a single Gray Kingbird was seen at the same place where the specimens had been taken in 1927. Hoping to establish an undoubted instance of nesting, another visit was made to the place on July 9, when my daughter found a nest with three eggs in an isolated, stunted live oak, among the sand dunes. The nest was not disturbed. A later visit, on July 25, showed all three eggs punctured as if by the beak of a bird, and the nest abandoned. A second nest, containing three well-feathered young birds, was found in a situation similar to the first and not twenty yards distant. Both owners of this second nest set up a great commotion at our approach and endeavored by every means short of actually striking us to drive us away. Another pair of adults, presumably the late owners of the abandoned nest, was located about two hundred yards away in a situation well suited to their nesting. Careful search, however, failed to discover another nest. On August 4, the pair from the second nest was seen with two young birds on the wing, and the adults alone were seen again on August 11. On both occasions the destitute pair was seen keeping close to their chosen territory, but, although their actions and their evident anxiety showed clearly that they were nesting again, the nest could not be found. Finally, on August 25, they were seen with three full-grown young on the wing. Thus, at least two broods of Gray Kingbirds were successfully reared here in the 1928 season.

The whole breeding territory covers an area of about one hundred acres on the shores of Pensacola Bay. Bordered by a brackish pond and a shallow lagoon, it comprises a patch of stunted pines and a white sand flat with a few low dunes that support a sparse and scattered growth of scrubby oaks. It is within sound of the surf on the outer beach, and is less than a mile distant from it.

Except for the foregoing, I know of no instance of the occurrence of this species nearer than 150 miles to the eastward. Mr. F. F. Gander, of San Diego, Calif., found the Gray Kingbird common and nesting at Apalachicola, Fla., some time in June, 1928; and Mr. Arthur H. Howell, of Washington, D. C., wrote me that he had seen Gray Kingbirds at St. George's Island, near Apalachicola, in May, 1926. The present record, then, seems to extend the western limit of the known range of this species.—FRANCIS M. WESTON, *U. S. Naval Air Station, Pensacola, Fla.*

Long-crested Jay in Quebec.—In 'The Auk' for January, 1928, p. 101, I recorded the capture of a specimen of the Long-crested Jay. Later the specimen was sent to Mr. P. A. Taverner, of the National Museum of Canada, who writes me as follows: "I have examined your Jay with considerable care and then sent it to Mr. J. A. Monro, of Okanagan Landing, B. C., who is more familiar with these western Jays than I am, for confirmation. I think there is little doubt but that it can be referred to *Cyanocitta stellaris annectens*, the Black-headed Jay, which is the "Steller's Jay" of the interior of British Columbia. The only way I can see to account for the occurrence of this bird near Quebec is that it got shut up in a fruit car and so transported there, which would not be an unlikely accident with a Jay, but it is hard to see how such a sedentary species could wander so far from its normal range."—GUS A. LANGE-LIER, *Cap Rouge, Quebec, Canada.*

Yellow-headed Blackbird in Pennsylvania.—On April 13, 1928, near Turtle Creek, Allegheny County, Pennsylvania, Mr. G. Ernest Welshons recorded a Yellow-headed Blackbird (*Xanthocephalus xanthocephalus*) in company with a flock of Starlings and Bronzed Grackles. The bird appeared to be an adult male. Records of this mid-western species, which is a straggler in the Eastern States, are thought to be so few as to warrant special mention of this occurrence in Pennsylvania.—GEORGE MIKSCHE SUTTON, *Game Commission, Harrisburg, Pennsylvania.*

Second Canadian Record of Bachman's Sparrow.—On May 6, 1928, while collecting birds at Long Point, Norfolk County, Ontario, I flushed a sparrow from its morning bath in a small swale situated in the open woods at the south end of Ryerson Island. The bird flew to a point of vantage in a sumac thicket where I observed it through my binoculars. Not being able to recognize the species, I hastily collected the specimen which proved to be an adult female Bachman's Sparrow, *Peucaea aestivalis bachmani*, now R. O. M. Z. No. 28.5.30.164. The specimen is in good plumage, only the rectrices being worn. Its length and weight in the flesh was 150 mm. and 15 gms. respectively.

This appears to be the second Canadian record for the species, the first being a male specimen taken at Point Pelee, Essex County, Ontario, on April 16, 1917, and recorded by Saunders, 'Canadian Field-Naturalist,' Vol. XXX III, No. 6, p. 118.—L. L. SNYDER, *Royal Ontario Museum of Zoology, Toronto.*

Harris's Sparrow in Denver.—While examining the birds present in Cheesman Park, Denver, Colorado, on October 14, 1928, the writer noted a single individual of this species (*Zonotrichia querula*) associated with a flock of various Juncos. This was the writer's first sight of this Sparrow in Denver, and is, so far as he knows, the first record of its occurrence in the city.—W. H. BERGTOLD, *Denver, Colorado.*

Barn Swallow Resting upon Water.—Barn Swallows during the summer of 1928 nested in a shed on the end of a wharf projecting into Narragansett Bay, Rhode Island. When I found the nest there were four young birds perching on its edge and one on a nearby rafter. I wanted to band these swallows, so another boy climbed up to the nest to get them. When he reached for one, two of them flew, one going to a beam and the other out through the doorway. I ran outside and saw the young bird flying diagonally from the wharf about ten feet above the water. It went thirty or forty feet and then returned to a perching place while several adult Barn Swallows flew close about it, calling loudly. When the young bird reached a place to rest I thought then would be the time to get it easily, but as I was about to put my hands on it, it flew over the same course above the water, but instead of returning went about thirty feet parallel with the end of the wharf. The adult swallows again flew close to the young bird and also called loudly. The line of flight gradually grew nearer to the wavy water until the young swallow was about a foot above it. Then it dropped upon the surface with outstretched wings which were held still, appearing to be touching the water. The parent birds then flew away from the young one on the water. At least half a minute passed when much to our surprise the swallow rose from the water and flew back to the wharf!

This is a definite observation of a passerine bird resting upon a branch of the ocean. Perhaps migrating birds rest for a moment in this manner at intervals on their journeys across large bodies of water.—MERRILL WOOD, Harrisburg, Pa.

White-eyed Vireo in Southern Michigan.—While collecting in the vicinity of Ann Arbor, Washtenaw County, Michigan, on May 13, 1928, I secured a female White-eyed Vireo (*Vireo griseus griseus*).

As far as published records go, this is the first specimen that has been taken within the State. The late W. B. Barrows in 'Birds of Michigan' mentions a few sight records. Mr. Norman Wood, Curator of Birds in the University of Michigan Museum, is of the opinion that the species has never before been taken in the State.

This individual was observed feeding in a dense thicket at the edge of a water-hole bordering a fairly heavy woodland. It confined its foraging to the lower growths, never more than six feet from the ground.

The specimen is now No. 59268 in the University of Michigan Museum Collection.—A. D. TINKER, Ann Arbor, Michigan.

Audubon's Warbler Near Minneapolis, Minn.—On April 28, 1928, near a small lake two miles southwest of Minneapolis, Minn., I saw an Audubon's Warbler. It was feeding in a birch on a hillside and I was thus able to get within about fifteen feet of it and watched it carefully for several minutes with a 6 x field glass. Of course the specimen should have been taken, but I feel satisfied that no mistake was made in identi-

fication, as the conditions under which the bird was observed were ideal. All marks were carefully noted and the bright yellow throat plainly seen. This, according to Dr. Thomas S. Roberts, is the first record for this species in the state of Minnesota.—ERNIE D. SWEDENBORG, *Minneapolis, Minn.*

Nest of Golden-crowned Kinglet in Millelacs County, Minnesota.—On July 26, 1928, in a spruce swamp located about five miles southeast of Onamia, Millelacs County, Minnesota, I found the nest of a Golden-crowned Kinglet containing nine well developed nestlings. It was a beautiful pensile nest made of moss and lined with feathers, placed in a thirty-two foot spruce about four feet from the top. As far as I could tell from quite a close watch during the following two days, the male did not assist in feeding the young. It stayed in the immediate vicinity and several times went to the nest, but at no time was it seen to be carrying food. The young were still being fed on the afternoon of the 28th but on the morning of the 29th the nest was empty. According to Dr. Thomas S. Roberts, this is the second nest of this species found in the state of Minnesota.—ERNIE D. SWEDENBORG, *Minneapolis, Minn.*

Notes from Washington, D. C.—*Gavia stellata*. RED-THROATED LOON.—On the morning of April 17, 1928, while strolling along the Tidal Basin, Potomac Park, D. C., my attention was attracted to a pair of birds swimming about which appeared to be Loons. A heavy rain began, so observations ceased. The next day, April 18, a single bird was seen resting on the beach, preening its feathers and glancing about. Small parties of tourists were constantly passing, but it paid no attention to them. The Loon permitted me to walk right up and take it into my arms. Squawks and stabs were to no avail, as I carried it to the U. S. Biological Survey where it was viewed with amusement and surprise by most of the members of the Bureau. Upon inquiry, the National Zoological Park expressed a willingness to have it added to its collection. Mr. Talbott Denmead supplied a basket and the bird was taken on a ride through the city in a street car. It was placed in the large flying cage with Herring Gulls and Black-crowned Night Herons. These birds formed a reception committee, circling about the pool and eyeing the loon with great suspicion. Whenever it drew near or took a poke at them the herons raised their crests and jumped for dear life. A keeper discovered it dead on the afternoon of April 20 with part of the entrails eaten. Through some error, the bird was buried, but I had it exhumed on April 26 and Mr. C. H. M. Barrett, after some difficulty, succeeded in making a fair skin. It now reposes in the Biological Survey collection.

***Mareca penelope*. EUROPEAN WIDGEON.**—John G. May and I secured a young male for the Biological Survey collection, which had been shot at Brent's Point, at the junction of Aquia Creek and the Potomac River, in Stafford County, Virginia, on December 24, 1927, by Mr. Uly T. Brooks.

Plectrophenax n. nivalis. SNOW BUNTING.—A single bird was seen in a flock of Tree Sparrows and Slate-colored Juncos at New Alexandria, Virginia, February 12, 1927.

Cistothorus stellaris. SHORT-BILLED MARSH WREN.—Through the singing of a Henslow's Sparrow, I discovered a pair of these wrens in an alfalfa field adjoining the dairy of the U. S. Soldiers' Home, D. C., May 10, 1927. The male was taken by Frederick C. Lincoln on May 11 and placed in the Biological Survey collection. The female was last seen on May 12.—WILLIAM HOWARD BALL, 1233 Irving St., N.W., Washington, D. C.

Additions to the List of the Birds of Leon County, Florida. Fifth Supplement.—Information of the following additions has come to me since the publication of the fourth supplement in 'The Auk' for April, 1928 (XLV, p. 164). The numeration is continued from that supplement and shows a total of 223 birds for the County:

219. *Larus delawarensis*. RING-BILLED GULL.—Messrs. H. L. Stoddard and Francis M. Weston saw one on Lake Jackson, February 14, 1928.

220. *Himantopus mexicanus*. BLACK-NECKED STILT.—Mr. Stoddard saw one on Lake Jackson, April 7, 1928.

221. *Pelidna alpina sakhalina*. RED-BACKED SANDPIPER.—Mr. Stoddard saw two on Lake Jackson, December 24, 1927.

222. *Charadrius dominicus dominicus*. GOLDEN PLOVER.—Mr. Stoddard saw one on Lake Jackson, April 7, 1928. He says he watched it long enough to be sure that it was not a Black-bellied Plover.

223. *Spiza americana*. DICKCISSEL.—In a letter of May 9, 1928, from Miss Esda Deviney, of the faculty of Florida State College for Women, to Mr. H. L. Stoddard, she says: "On April 26 I saw a male Dickcissel one mile east of Tallahassee just to the left of State Highway No. 1. He, together with a flock of Indigo Buntings and Bobolinks, was apparently stopping off to eat a farmer's oats. However, the Dickcissel was in a pecan tree when I saw him."—R. W. WILLIAMS, Department of Agriculture, Washington, D. C.

Some Vancouver, B. C., Records.—The following specimens taken at Vancouver seem worthy of record.

Icteria virens longicauda. LONG-TAILED CHAT.—Male, South Vancouver, May 9, 1927.

Junco h. hyemalis. SLATE-COLORED JUNCO.—Males, South Vancouver, April 4, 1926, and October 3, 1926.

Virco huttoni obscurus. ANTHONY'S VIREO.—Male, South Vancouver, February 16, 1927.

Dumetella carolinensis. CATBIRD.—Male, South Vancouver, July 10, 1927.

Otocoris alpestris strigata. STREAKED HORNED LARK.—Series of six taken on Lulu and Sea Islands, February 12, 1927. Identified as *Otocoris alpestris strigata* by Mr. Munro, of Okanagan Landing.

Asio wilsonianus. LONG-EARED AMERICAN OWL.—Male and female, two nestlings taken from a Crow's old nest, Lulu Island, May 30, 1927.

Archibuteo lagopus sancti-johannis. AMERICAN ROUGH-LEGGED HAWK. Male, Pitt Meadows, November 20, 1927.

All collected by Mr. R. A. Cumming, South Vancouver, and now in his collection.

The Chat has been reported at Sumas by Allan Brooks and he has reported the other species at Chilliwack.—JAMES D. TURNBULL, Vancouver, B. C.

Protective Mimicry of the Chickadee.—Mr. A. L. Pickens' interesting article on this subject in 'The Auk' for July, 1928, p. 302, prompts me to point out that the European Titmice produce warning noises in apparently exactly the same manner as the American Chickadee. I have frequently noticed this habit in the case of the British Great Tit (*Parus major newtoni*), on at least one occasion in the British Coal Tit (*P. ater britannicus*), and it is also characteristic of the British Blue Tit (*P. caeruleus obscurus*). Mr. Pickens' description of the movements of the Chickadee in producing this explosive hiss applies exactly to those of the Great Tit; but though well known to field-workers, there is little on record in the numerous books on British birds on the subject beyond a few references to "hissing like a snake" on the part of the setting Blue Tit.—F. C. R. JOURDAIN, Southbourne, Bournemouth, England.

A Spider (*Argiope aurantia*) and a Bird (*Astragalinus tristis tristis*).—Mr. George H. Thacher has told me of an interesting episode which his son, Mr. Ira R. Thacher, of Yarmouth, Cape Cod, Mass., witnessed one morning in August, 1928.

Mr. Thacher, junior, at my request has written me an account of what he saw, which I quote.

In walking across the fields in Yarmouth and crossing a dyke around the edge of a cranberry bog, his attention was aroused by the disturbed calls of a small bird. He soon located the spot and found a small bird which he called a *wild canary* (probably an American Goldfinch?) completely immeshed in a spider's web, which appeared to be about twelve inches in diameter, and placed near the ground between two blueberry bushes.

This spider Mr. J. H. Emerton, the eminent authority on spiders, has identified from the description as being a female *Argiope aurantia*.

After watching a few moments, during which time the ensnared bird's mate was flitting around and chirping apparently much disturbed, he released the captive bird and removed what he could of the web which encircled it, and holding it in his open palm invited it to fly away, but either through fear or exhaustion it was unable to do so, and in making the attempt fell at his feet among the bushes and disappeared before he was able to recapture it. It is probable that some of the readers of this

article may question the possibility of any spider indigenous in the New England States constructing a web of sufficient strength to hold even a very small bird. I coincide in this view with the exception of this particular spider, *Argiope aurantia*.

Mr. Emerton has kindly shown me a specimen of a large female of this spider with a yellow and black body and long black legs, whose body is as large as the end of one's finger. It usually spins its web near the ground between two bushes where there is rather dense undergrowth, leaving only a contracted space between them, with a sort of lane or pocket behind.

Mr. Emerton showed me photographs of such webs in place, and made the suggestion that a small bird on becoming entangled might not have sufficient space to exert its full strength to liberate itself; he also thought it unlikely that the spider would have been able to kill the bird.—GEORGE H. MACKAY, *Nantucket, Mass.*

An Early Collection of Birds.—My friend, Mr. Harrold E. Gillingham, has called my attention to an advertisement which he discovered in a copy of the 'Pennsylvania Packet' published in Philadelphia, on April 20, 1772, which reads as follows: "A Collection of preserved North American birds to be disposed of. Inquire of the Printer."

As this was over twenty years before Alexander Wilson arrived in America and thirteen years before Audubon was born, it would be interesting to know who the collector may have been.—WITMER STONE, *Academy of Natural Sciences, Philadelphia.*

RECENT LITERATURE.

Mrs. Bailey's 'Birds of New Mexico.'—Comprehensive illustrated works on local ornithology have hitherto been limited to the Eastern States or those of the Pacific Coast and now for the first time we have before us an adequate ornithology of one of the less known commonwealths of the South-west, in Mrs. Florence Merriam Bailey's 'Birds of New Mexico.'

The publication of such a work as this¹ is an expensive matter and that fact is mainly responsible for the comparatively small number that have appeared. In the present case Mrs. Bailey has had the support of the New Mexico Department of Game and Fish, the State Game Protective Association and the Bureau of Biological Survey of the U. S. Department of Agriculture, and last but not least "the kindly interest and financial assistance of Mr. and Mrs. George Deardorff McCreary Jr., of Silver City, New Mexico" and formerly of Philadelphia.

To Mrs. Bailey's literary ability and wide field experience, together with that of her husband, Vernon Bailey, and other members of the staff of the U. S. Biological Survey on their many expeditions through the Southwest, we are indebted for a most complete account of the bird-life of this interesting region, while much credit is also due those who have generously made possible the publication on such a sumptuous scale.

The whole plan of the work is admirable. Beginning with an adequate description of each species and subspecies in its several plumages, there follows in most cases a paragraph on "Comparisons," contrasting the species with its nearest allies especially as seen in the field. Then comes the range of the bird and a summary of "State Records" covering its distribution in New Mexico, the latter mainly compiled by the late Wells W. Cooke. Other paragraphs cover nest and eggs, and food. Then in larger type is a sketch of the "General Habits" of the species which demonstrates not only the extent of the author's field experience but her thorough knowledge of the literature of American Ornithology, since she quotes interesting and appropriate items bearing on the life histories of the various species from a very wide range of publications as well as from the unpublished records in possession of the Biological Survey.

¹ *Birds of New Mexico.* By Florence Merriam Bailey, author of *Handbook of Birds of the Western United States, With Contributions by the Late Wells Woodbridge Cooke, formerly Assistant Biologist of the Biological Survey.* Illustrated with Colored Plates by Allan Brooks. Plates and Text Figures by the Late Louis Agassiz Fuertes, And Many Other Cuts from Drawings, Photographs, and Maps. Based mainly on field work of the Bureau of Biological Survey, United States Department of Agriculture. Published by the New Mexico Department of Game and Fish in Cooperation with the State Game Protective Association and the Bureau of Biological Survey. 1928. pp. i-xxiv + 1-807, pls. 1-79, figs. 1-136, maps 1-60, diagrams 2. Price \$5.00. New Mexico Department of Game and Fish, Santa Fe, New Mexico.

At the close of nearly every biography is a list of "Additional Literature" bearing on the species in question for the benefit of those who desire to pursue the subject further.

Those familiar with Mrs. Bailey's published volumes and magazine articles will require no further assurance of the readable character of her text and of the amount of interesting matter that she has brought together in a comparatively small space.

Like Forbush's 'Birds of Massachusetts' the 'Birds of New Mexico' is by no means only a state work but is in fact a notable contribution to the ornithology of North America, as well as our first comprehensive account of the avifauna of the Southwest; most of the species being also birds of Arizona and many of them extending their range into southern California or western Texas, either as the same or closely allied subspecies. As no other section of the United States is, perhaps, so distinctive in the character of its avifauna, being as it were a derivative of Old Mexico, this work is particularly welcome.

While we have spoken of Mrs. Bailey's book as the first adequate description of the bird life of a neglected corner of the country we must remember, as she has pointed out, that "New Mexico has the distinction of being the first state in the Union from which bird notes were recorded by white men." Francisco Vasques de Coronado, Spanish governor of New Galicia, in western Mexico, made an expedition in 1540-42 through the present states of Arizona and New Mexico and in the report of his explorations made brief mention of birds. No further ornithological notes relative to the state appeared, however, until the report of Long's expedition in 1820, after which William Gambel (1841) and the various naturalists of the government expeditions laid the foundations of our present knowledge of the fauna of the Southwest. But of all those who have studied the avifauna of the state we find that none have had such a wide field experience as Mrs. Bailey and her husband.

Beside the main text of the work there is an introduction with a brief discussion of the life zones of New Mexico, the distribution of the birds, value of birds to the state, organizations interested in conservation, lists of birds first described from New Mexico, of fossil birds found in the state and of collections made there.

The greater part of New Mexico lies in the Upper Sonoran zone, the Lower Sonoran entering along the valleys of the Gila, Rio Grande, Sacramento, Pecos and Red Rivers, while the mountains are Transition with some Canadian peaks while the high summits of the north central portion of the State support also areas of Hudsonian and Arctic Alpine.

An interesting chapter by the late Prof. Cooke discusses the itineraries of expeditions and reports of field work in the state, the various explorations being considered in chronological order from Coronado (1540) down to the present time. There is also a list by the same author of localities where collecting was done, and a glossary of technical terms,

while at the close of the volume is a list of "Literature Cited" which includes most of the publications on New Mexican birds and many other papers and books from which quotations have been made in the text.

We note an omission in the summary of field work and collections which for the sake of future reference might be mentioned. The reviewer published in the 'Proceedings' of the Academy of Natural Sciences of Philadelphia (May 7, 1903), pp. 26-29 a list of birds seen or collected by Mr. J. A. G. Rehn during some three months' field work in Otero County mainly at Alamogordo and vicinity, the collection being preserved in the museum of the Academy. Mr. Wharton Huber also made an extensive collection for Col. John E. Thayer (1920) at Las Cruces and another for himself (1915) in the same vicinity, but so far as we are aware no accounts of these were ever published.

The sequence of species, which will appear novel to most readers, is that to be followed in the forthcoming new edition of the A. O. U. 'Check-List' and the nomenclature has been revised so far as possible to accord with the same work, although in the popular names the possessive "s" has been dropped in accordance with the policy of the Biological Survey in the past.

The illustrations of Mrs. Bailey's book are noteworthy. There are twenty-three colored plates by Allan Brooks and one by the late Louis Agassiz Fuytes, depicting fifty-nine species of the characteristic birds of the Southwest. There is also a colored faunal map and fifty-five half-tone plates from photographs from nature, from groups in the Colorado Museum of Natural History and from paintings by Fuytes, also a useful drawing by Brooks of soaring hawks, while text figures to the number of 136 and sixty distributional maps add to the wealth of illustrations. The maps are particularly useful as in no other way can distribution be so clearly indicated.

Many of the half-tones are from previous publications of Mrs. Bailey or the Biological Survey.

Major Brooks' paintings add to the beauty of the work and are fully up to his high standard although a few of the postures do not seem to us quite as characteristic of the birds as in the case of his paintings of more northern species with which he is more closely familiar.

The work is one that should be in the library of every ornithologist, in every reference library, and in every school of the Southwest. It treats of a field not covered by any of our other bird books and will be a factor of the greatest importance in developing a love of birds and bird conservation in the rapidly growing population of our Southwest—this indeed has been the author's chief aim and every effort has been made to attract the attention and interest of those who should know the birds of their state.

To the author, artist, publisher, and patrons we owe a debt of gratitude for producing one of the notable ornithologies of recent years.—W. S.

Mrs. Sturgis's 'Field Book of Birds of the Canal Zone.'—The most recent of Putnam's 'Nature Field Books' is an attractive little volume¹ by Mrs. Bertha Bement Sturgis entitled 'Field Book of Birds of the Panama Canal Zone.' As Dr. Chapman explains in the "foreword": "There has long been a demand for a popular book on the birds of the Canal Zone and Mrs. Sturgis, after three years' residence in the Zone, experienced this want and, returning to the United States where material for study was available, she filled it with the present volume."

The facilities of the American Museum of Natural History were made available to the author and with specimens and the published literature at her disposal the present excellent little book has been prepared.

There is an introduction which discusses the extinction of birds in the Zone, the need of sanctuaries, etc. Then a short account of the commonest birds of the region and a brief explanation of the nature of scientific names and the principles of classification. The main text consists of descriptions of the species and usually a short paragraph on habitat and habits. When the technical name adopted differs from that used in Stone's 'Birds of the Panama Canal Zone' (Proc. Acad. Nat. Sci. Phila., 1918, pp. 239-280) or Ridgway's 'Birds of North and Middle America, references to these works are given. Under the family headings some of the general characteristics and habits of the group are presented. There is an explanatory list of localities mentioned in the text and a nominal list of migrants and winter visitants from the United States—eighty-nine in number. If we have counted correctly there are 418 species or subspecies included in Mrs. Sturgis's book as against 432 listed by Stone, some of which were based on dubious authority, and we can take the first figure as indicating pretty accurately the extent of the avifauna of the Zone. The largest groups are the Tyrannidae with 52 species, the Formicariidae with 21, Hawks, etc. 23, Hummingbirds 20, and Tanagers 19. Keys are furnished for most of the families which aid the student materially in identifying his birds.

The illustrations comprise eight plates by F. L. Jaques, six of which are in colors and sixteen additional plates from photographs of birds from life or of scenery, as well as 107 line drawings of heads or entire birds, some of them rather crude, by Rudyerd Boulton. The printing of the book and its general make-up are excellent.

This is probably the first hand-book, at least in English, of the birds of any part of the Neotropical region and is particularly welcome at this time when so many persons are visiting the Zone and quite a number

¹ Field Book of Birds of the Panama Canal Zone. A Description of the Habits, Call Notes and Songs of the Birds of the Panama Canal Zone, for the Purpose of Identifying Them. Many of These Birds are Also Common in Central and South America. By Bertha Bement Sturgis. With over 100 illustrations, color plates, pen and ink sketches, and a map of the Panama Canal Zone. G. P. Putnam's Sons New York and London, The Knickerbocker Press. 1928. pp. i-xxxix + 1-466, pll. 1-4. figg. 1-107. Price \$3.50.

studying at the Barro Colorado Zoological Station. Mrs. Sturgis is to be congratulated upon an excellent piece of work.—W. S.

Van Schaick's 'Nature Cruisings.'—The editor of the 'Christian Leader,' John Van Schaick Jr., has written many articles for his paper dealing with the great outdoors and the best of these have been gathered together in the present volume.¹ Those who enjoy reading nature books will find both pleasure and profit in Mr. van Schaick's book. He has the gift of putting his observations in a way that constantly holds one's interest and his descriptions bring vividly before our mind's eye the scenes that he describes.

There is much about his old home town of Cobleskill, N. Y., a series of chapters dealing with the environs of Boston, and another on Washington and the Potomac, while other sketches treat of "cruises" farther afield.

Trees, plants and birds all appeal to the author as well as the beauty of nature in general, while his constant reference to and quotations from the writings of a long list of authors bear evidence of his wide reading of nature lore. There are interesting accounts of associations with the Audubon Societies of Massachusetts and the District of Columbia and he acknowledges his indebtedness to the secretary of the A. O. U. for starting him on his "life list" although on account of an unfortunate typographical error that gentleman's identity is concealed under the name of "G" S. Palmer.

Many members of the Union will find familiar trails in Mr. van Schaick's delightful volume and all nature lovers will enjoy it.—W. S.

Hausman's 'Hawks of New Jersey.'—At the present time when the tide of public opinion guided by sportsman interests is setting against the Hawks with the danger of their utter extermination, a book² like that which Dr. Hausman has published is most welcome. It calls attention vigorously to the beneficial character of most Hawks and their especial value to the farmer.

In his foreword the author sums up the situation aptly with the following statement: "If one should see a man in a blue suit making his escape after robbing a house, and should thereupon sally forth into the street with a shot gun and blaze away at every man in a blue suit that he happened to meet he would be carrying out in practice the principle upon which many act when they wage indiscriminate warfare upon our native hawks." He then proceeds to set forth the characteristics, habits and value of the thirteen Hawks and the Turkey Vulture found in New

¹ *Nature Cruisings to the Old Home Town and the Little Hill Farm.* By John van Schaick, Jr. Editor of the Christian Leader. Author of *The Little Corner Conquered, Cruising Around a Changing World, Cruising Cross Country.* The Murray Press, Boston, Mass. 1928. pp. 1-448.

² *The Hawks of New Jersey and their Relation to Agriculture.* Dr. Leon Augustus Hausman. New Jersey Agricultural Experiment Station, New Brunswick, N. J., Bulletin 439. January, 1927. pp. 1-48, figs. 1-48.

Jersey, illustrating his report with cuts from Fisher's 'Hawks and Owls' and other Government publications besides some original photographs and drawings.

We cannot have too many publications like this if we are to save our birds of prey as only by educational methods can we make the public at large realize what is in store for them if these natural checks on the increase of rats and mice are destroyed—not to mention the loss that nature suffers in the elimination of these splendid picturesque birds. Dr. Hausman deserves our gratitude for his admirable report.—W. S.

Robinson's 'Birds of the Malay Peninsula.'—The second volume¹ of Mr. Robinson's 'Birds of the Malay Peninsula,' the first part of which was reviewed in 'The Auk' for April 1928, has recently appeared and is devoted to the birds of the "hill stations."

It is similar in all respects to the preceding volume and fully maintains the high standard both as to method of treatment and printing that was established by its predecessor.

The region covered in this volume is the mountainous region above 2500 feet. An outline map shows the extent of this area in the British portion of the Peninsula although the data on the Siamese portion is so inadequate that no attempt to delimit it has been attempted. While most of the species now considered are different from those described in Part I, some occur in both regions and in such cases only a brief description is given with reference to the fuller account previously published. In this way unnecessary duplication is avoided and yet each volume is complete in itself.

There are twenty-five excellent plates by Grönvold all but two of them in colors. Among others such striking Malayan birds as the Long-tailed Broadbill (*Psarisomus*), the White-headed Babbler (*Gampsorhynchus*), the curious Liothrichine birds *Mesia* and *Siva*, Green Bulbuls and Blue Flycatchers are figured.

One plate depicts the heads and enormous casques of the several species of Hornbills found in this region and, in describing the habits of the helmeted species (*Rhinoplax vigil*), the author says that in flight its action is very similar to the other large Hornbills—"three or four beats of the wings in rapid succession being followed by a period in which they are held rigid, the rattling sound made by the air against the primaries being audible at a very great distance. The call of the bird is equally characteristic being a series of single whoops at decreasing intervals . . . representing the ringing note of the axe against timber."

¹ The Birds of the Malay Peninsula. A General Account of the Birds Inhabiting the Region from the Isthmus of Kra to Singapore with the Adjacent Islands. By Herbert C. Robinson, F. Z. S., M. B. O. U., C. M. Amer. O. U., Late Director of Museums, F. M. S. Volume II: The Birds of the Hill Stations, with twenty-five full-page plates. Issued by Authority of the Federated Malay States Government. H. F. & G. Witherby, 326 High Holborn, London, W. C. 1. 1928. pp. i-xxii + 1-310, pls. 1-25, 1 map. Price 35 shillings.

The value of this series of volumes as works of reference and as beautiful illustrated books for the ornithological library cannot be overstated. We congratulate Mr. Robinson for placing within our reach such an admirable review of the avifauna of a remote but fascinating region which but few of us can hope to visit in person.—W. S.

Grinnell on the Birds of Lower California.—Dr. Joseph Grinnell has presented in this well gotten-up publication¹ another of his excellent distributional lists and one that is particularly welcome since it treats of Lower California, the avifauna of which has been sadly in need of revision. Through the generosity of Miss Annie Alexander the Museum of Vertebrate Zoology was enabled to carry on field work in the Peninsula for the greater part of three years, especially in the San Pedro Martir Section, and valuable collections were obtained. Upon this material, as well as upon earlier collections in various museums and upon the extensive literature of Lower California ornithology, the present report is based. The study was beset with many difficulties due to the constant duplication of locality names and the uncertainty as to which one the earlier writers referred to; to the careless or incompetence of certain writers in identifying their material; and to the loss of the valuable Bryant collections in the San Francisco fire. Nevertheless Dr. Grinnell has turned out an exceedingly accurate and valuable piece of work.

He recognizes in Lower California several "differentiation areas," as he terms them, in which the differentiation of species or subspecies appears to be directly correlated with conditions having to do with the degree and duration of isolation together with peculiarities of climate, shelter and food. These districts are the Cape, San Pedro Martir (including San Quentin), San Ignacio, the Colorado Desert, San Diegan, Sierra Juarez, Guadeloupe Island, San Bonito Islands, Los Coronados Islands, and Santa Barbara Islands; the peculiar forms differentiated in each ranging from one in the Los Coronados to forty-six in the Cape San Lucas district.

Dr. Grinnell agrees with previous writers that the fauna of the entire Peninsula has been derived from the north and even in the farthest remote Cape district forty-three of the forty-six peculiar forms are apparently so derived, only three, *Crotophaga sulcirostris pallidula*, *Basilinna zantusi* and *Dendroica erithachorides castaneiceps*, having been derived from the tropical coast of Mexico immediately across the Gulf of California.

Dr. Grinnell's chapter on the "Significance of Faunal Analysis for General Biology" is of sufficient importance to have been published separately and will, we fear, be overlooked by many, buried as it is in a work of very different title. He says in introducing his subject that "the importance of carefully differentiating species and subspecies and tracing

¹A Distributional Summation of the Ornithology of Lower California. By Joseph Grinnell. Univ. Calif. Publ. in Zool. Vol. 32, No. 1, pp. 1-300, figs. 24. University of California Press, Berkeley, Calif. 1928.

their respective ranges is of the utmost biological importance since in this work we are scrutinizing evolution now in progress." This we heartily endorse as well as his further statement "that apart from the presence or absence of intergrading specimens there is no difference between a subspecies and a species," and once more, when, in objecting to the criticism of the recognition of subspecies in nomenclature because they are considered as difficult of recognition and of no practical utility, he asks, "is the histologist, the embryologist, or the bacteriologist expected to confine his labors within limits easily comprehended by the laity? and if not why should the faunal zoologist be expected to keep his investigations within any such bounds?"

Dr. Grinnell's discussion of the origin of species and his opposition to the claims of those who advocate evolution through mutation deserve careful consideration, and we are inclined to give support to his claim that "the problem of the origin of species ought to be dissociated largely from the problem of inheritance," and that the former "would seem to lie much more nearly to the province of the geographer and climatologist than to that of the geneticist." Animal adaptation he regards as "merely the demonstration of a capacity to survive under conditions at the moment existing" and that "animals do just as little adaptation as they can" and "get by."

The main part of Dr. Grinnell's work consists of a list of species and subspecies in the order of A. O. U. 'Check-List' of 1910, with a statement of their general status and range in the Peninsula and a discussion of all the important records with dates and references. A perusal of the accounts of a few of the species impresses one with the enormous amount of time and labor that the author must have expended upon this "summation" which will prove of the greatest aid to the student of geographical distribution. In addition to the "summation" there is a gazeteer of localities, a nominal list of species in the order of the new 'Check-List,' now in process of compilation, and a bibliography. A number of useful outline maps are scattered through the text which illustrate graphically the range of the subspecies of many groups.

We have already expressed our disagreement with Dr. Grinnell upon the subject of vernacular names, which he has revised so that they are usually binomial for species and trinomial for subspecies, just as are the technical names. We cannot appreciate the necessity for this rather far-fetched "consistency," and when two subspecies have accumulated a large literature and are generally known under the names Red-shouldered Hawk and Red-bellied Hawk, we fail to see anything but confusion in calling the latter the "Red-bellied Red-shouldered Hawk" simply because the two are regarded as subspecies. Is anyone, moreover, going to use such vernaculars as "San Pedro Martir Mexican Bluebird" or "Long-tailed Yellow-breasted Chat"? and if not why coin such book names? We had hoped that in our vernaculars at least we had some stability in

nomenclature. However, this does not affect the value of Dr. Grinnell's admirable "Summation."—W. S.

Sutton's 'Introduction to the Birds of Pennsylvania.'—Mr. Sutton in his work for the Pennsylvania Game Commission has found a wide-spread need throughout the state, especially among school teachers, for a book that would furnish information on the distribution, abundance, etc., of the birds of the Commonwealth, and he has prepared this little volume¹ to meet the want. That he has successfully accomplished his task I think all will agree.

He has prepared brief but adequate descriptions of the various species with details of distribution in Pennsylvania and accounts of their nesting, while there is a paragraph or two on habits, song, etc. There are also, and this is a most important feature, line drawings by the author, of most of the species. Mr. Sutton, as is generally known, is primarily a bird artist, one of the best in America, and his ability to present an identifiable portrait of a bird without the use of colors is well shown in these admirable sketches. In every case he has caught a characteristic pose and has brought out the color values in black and white in a remarkable manner. Would that all who try to draw birds possessed this ability.

While the details of distribution for the western parts of the state with which Mr. Sutton is most familiar, seem to be excellent, it is unfortunate that he could not have had the benefit of the assistance of some one equally familiar with the eastern counties as some of the ranges for this region might have been improved.

While many very rare species, for some of which we lack definite state records, are included, curiously enough, no mention is made of the King Eider, several of which were killed on the Susquehanna River near Harrisburg in December 1920 (Auk, 1921, p. 270) and some of them, we understand, mounted for the State Museum.

Mr. Sutton's little book will, we feel sure, be of the greatest benefit to beginners in the study of Pennsylvania ornithology and to teachers who are in search of reliable information to use in instructing their classes.—W. S.

Phillips' 'A Sportsman's Scrapbook.'—Lovers of the great outdoors always enjoy a sportsman's reminiscences and this volume² of disconnected accounts of Dr. Phillips' hunting experiences in various parts of the country, will prove well worth reading. There are boyhood recollections, and

¹ *An Introduction to the Birds of Pennsylvania.* By George Miksch Sutton, State Ornithologist of Pennsylvania, etc. J. Horace McFarland Company, Harrisburg, Pa. 1928. pp. i-viii + 1-169, numerous cuts and frontispiece, color plate. Price \$1.00. (Mrs. L. A. Lutringer, Jr., 1724 Herr St., Harrisburg, Pa.)

² *A Sportsman's Scrapbook.* By John C. Phillips with illustrations by A. L. Ripley. Houghton Mifflin Co., Boston and New York. pp. 1-212, many illustrations. Price \$5.00.

accounts of camp life in the wilder parts of New England; fishing and ducking anecdotes and fuller and more serious accounts of grouse shooting. Dr. Phillips' experiences however are not limited to New England. There is a chapter on Currituck memories and others on Moose hunting in New Brunswick, on the pursuit of the Chamois in the Alps, on shooting Reindeer in Greenland and Bighorn Sheep in what is now Glacier National Park.

The author's comments on ducking methods in the past and present are both interesting and amusing. He describes pot hunting among moonlit ice cakes on the Ipswich meadows, shooting the birds "sitting if we could and flying if we couldn't, and yet we did not get as many ducks in an entire season as a present day shooter can kill at a baited blind on Currituck in a week or even a day, and where neither weather-wise lore nor hardihood is necessary to kill the limit!"

It is, no doubt, the increase in hunters and the improved facilities rather than the old methods that have threatened our duck supply but we must have stringent laws nevertheless if we are to save the game birds for posterity. Dr. Phillips' attractive book is beautifully printed on heavy paper and illustrated with wonderfully delicate reproductions of drawings of birds, dogs, gunners, etc., by A. L. Ripley. In all respects it is the sort of book that lovers of handsome publications like to have.—W. S.

Linsdale on Variation in the Fox Sparrow.—This¹ is primarily a study of variation and since the author considers that more significant results might be obtained by a study of the smallest discernable deviations within a species, rather than by studying larger groups, which are less similar, he has selected the Fox Sparrows which have already been divided upon external characters into a large number of subspecies. With 465 skeletons of Fox Sparrows representing fourteen of the sixteen subspecies he has made measurements of three skull dimensions, two of the ramus, the length and breadth of the sternum, length of the pelvis, femur, tibia, tarsus, humerus, radius, ulna, coracoid, scapula and furcula.

There are also discussions of variation in the food, habits, distribution, migration, song, and nesting of the several subspecies.

Several well marked tendencies to vary geographically in habits and in response to environment are found in Fox Sparrows, and these follow a definite order so that it is possible to point out parallels between them and tendencies to vary in features of structure. The author was unable to find any advantage to the bird in the possession of the enlarged bill and skull characteristic of some subspecies, but some other skeletal characters did appear to have a definite value.

After arguing that it is desirable for the persons who work in systematics to understand the phases of variation of the objects with which

¹ Variation in the Fox Sparrow (*Passerella iliaca*) with Reference to Natural History and Osteology. By Jean M. Linsdale. Univ. Calif. Publ. in Zool. Vol. 30, No. 12, pp. 251-392, pls. 16-20, and 38 text figures. Univ. of Calif. Press, Berkeley, California. 1928.

they deal and mentioning the small amount of material at the disposal of the early systematists, the author remarks that it is surprising that they made so few errors. It would seem to us that while a study such as is here presented has a value all its own, that such an amount of study is not actually necessary for systematic work. The systematist soon recognizes what sort of characters are likely to prove of value in separating species or subspecies and that is why he makes comparatively few errors even with a very small amount of material.

Mr. Linsdale has certainly presented a vast amount of data which is available for various lines of investigation and other interesting deductions may doubtless be made from it besides those that he has formulated. One point of interest to the systematist is his conclusion that there are no characters of any sort by which the genera *Passerella* and *Melospiza* may be definitely separated, a fact that has apparently been suspected by others but no one has ventured to combine the two groups with their long array of subspecies. However since Dr. Wetmore and Mr. Miller have allowed them to stand in their outline of classification for the new A. O. U. 'Check-List' there may be some differential characters that Mr. Linsdale has failed to grasp, possibly obscured by the excessive plasticity of both genera, or is it simply a matter of personal opinion such as confronts us in the recognition of various other genera and species?

There are a number of excellent photographic plates of skulls of Fox Sparrows and many charts showing variations.—W. S.

Mathews' 'Birds of Norfolk and Lord Howe Islands.'—This volume¹ as distinctly stated by the author is not a supplement to his 'Birds of Australia' although a useful addition to that work. As a matter of fact it is exactly uniform with the other work and the second part consists of "Birds of the South Polar Quadrant and Additions to 'The Birds of Australia'."

There are 39 species and subspecies recorded from the two islands all but five of which are figured on the 29 plates which are mainly colored, and from drawings by Grönvold.

The second part of the volume consists of sixteen plates, all in colors illustrating the six additional species of the South Polar region and a number of additional forms for Australia with notes on several others. So far as we can see there are no new forms described in this work. Mr. Mathews considers that the regions here covered belong naturally and faunally to Australia and suggests that in any new list their birds be added to the Australian avifauna. The text and plates are fully up to the standard set in 'The Birds of Australia' and the work is most welcome,

¹ The Birds of Norfolk & Lord Howe Islands and the Australian South Polar Quadrant with Additions to "The Birds of Australia." By Gregory M. Mathews, author of "The Birds of Australia" with Hand-colored and Monochrome Plates. H. F. and G. Witherby, 326 High Holborn, London. 1928. pp. i-xii + 1-139. pls. 1-45 (unnumbered). Published October 16, 1928.

summarizing as it does the avifauna of an out of the way corner of the world with which no one is more familiar than Mr. Mathews.—W. S.

Swann's 'Monograph of the Birds of Prey.'—This notable publication¹ which has been suspended since the death of its author is now resumed under the editorship of Dr. Alexander Wetmore. No change is to be made in regard to the distinctness of the various forms and their relationship to one another and Mr. Swann's manuscript was fortunately left in such shape that no major alterations will be necessary. The present installment completes the genera *Buteo* and *Triorchis* while the illustrations consist of colored plates of species of *Aquila* and *Ictinaetus*, eggs of Eagles as well as plain plates from photographs by George H. Stuart 3rd, of Philadelphia, of the nest and nest site of the Ferruginous Rough-leg in Saskatchewan.

We notice that the name *Buteo platypterus cubanensis* Burns (Wilson Bull. XXIII, No. 76-77, p. 148) has been omitted. It is in all probability a synonym of *platypterus* as considered by Barbour.

It is very gratifying to know that this important work is to be brought to completion, and a better selection of an editor could not have been made.—W. S.

Havre's 'Birds of Belgium.'²—This work is a thoroughly up-to-date list of the birds of Belgium with details of their distribution. It includes 366 species and subspecies and seems to be very carefully compiled and exhaustive.

Under each species is given the more important synonyms and references, followed by detailed consideration of distribution under three heads—General, Belgium, and Neighboring Countries. There are keys to the species in each genus and many text figures of feet, wings and heads, which aid in identification; also a map and an excellent bibliography of local notes and papers relating to Belgian birds.

M. Havre's work will long stand as the authoritative book on the birds of Belgium.—W. S.

Bangs and Peters on Chinese Birds.³—Dr. Joseph F. Rock, during 1925 and 1926, visited western China in the interests of the Arnold Arboretum to secure botanical and horticultural material. Through the gen-

¹ Monograph of the Birds of Prey (Order Accipitres). By H. Kirke Swann and Alexander Wetmore. London: Wbeldon and Wesley Ltd., 2, 3 & 4 Arthur St., New Oxford St., W. C. 2. Part VII, Sept. 1928, pp. 397-428, five plates. Price 26 shillings net.

² Les Oiseaux de la Faune Belge Relevé documenté des espèces sauvages observées en Belgique. Par le Chevalier G. C. M. van Havre, Membre du Comité Ornithologique International et Permanent et du Conseil Supérieur de la Chasse. Bruxelles, Maurice Lamertin, Editeur, 56-60 Rue Coudenberg. 1928. pp. 1-497. Price 150 francs.

³ Birds Collected by Dr. Joseph F. Rock in Western Kansu and Eastern Tibet, Bull. Mus. Comp. Zool. LXVIII, No. 7, pp. 313-381, pll. 1-5. August, 1928

erosity of Dr. Thomas Barbour he was enabled to take with him two Chinese bird collectors. The present report is based upon the ornithological material secured on the trip which consists of upwards of 1000 skins.

New forms of the following genera are proposed:—*Athene*, *Ianthocichla*, *Fulvetta*, *Suthora*, *Prunella*, *Lanius*, *Parus*, *Aegithaliscus*, and *Galerida*.

The authors are experienced in working out collections from China and the present report is therefore of particular value.—W. S.

The Heart of Burroughs' Journals.¹—This volume compiled by Clara Barrus, for years the physician and confidante of Burroughs, consists of especially noteworthy passages selected from his earliest notebooks, which he kept in 1854 when but seventeen years of age, and his journals which were continued down to within a few weeks of his death, in 1921.

The complete journal covering some 2000 type-written pages has not yet been published and the compiler says that she has experienced much difficulty in making her selections, as with no complete edition to which to refer her readers, she feels that they are constantly being robbed when she has been able to "bring away so little of the treasure to which she herself has had access."

However, since her readers do not yet know what treasures are contained in the unpublished journals, they do not appreciate any loss, and will thoroughly enjoy the admirable picture of Burroughs which she has been able to present. We see him through his own eyes, as it were, his likes and dislikes, his views on a great variety of subjects, and through it all his abiding love of nature and especially of birds. As Dr. Barrus says, "whatever of interest the journals hold, of self-communings, of opinion on persons, on literature, on life, they prove how completely Nature was Burroughs' guide and liberator from beginning to end."

This is what makes the volume before us of especial interest to bird lovers, most of whom are already familiar with one or more of Burroughs' books and who naturally desire to learn more of the man himself.

A useful chronology of Burroughs' life is included in the volume and there is a good portrait and an excellent index.—W. S.

Pellett's 'Birds of the Wild'.²—There have been many books written on the subject of attracting birds to our homes but this little volume of Mr. Pellett's seems to us one of the best. The author describes his efforts to preserve and increase birds and wild flowers on his two properties, one in Iowa, and the other on the prairies of Nebraska.

Nesting boxes and nesting places, water for drinking and bathing, winter shelters and feeding stations, tree and shrub planting, all receive attention.

¹ *The Heart of Burroughs' Journals*. Edited by Clara Barrus. Houghton Mifflin Company, Boston and New York, Riverside Press, Cambridge. 1928. pp. i-xvii + 1-361. Price \$3.00.

² *Birds of the Wild. How to Make Your Home Their Home*. By Frank Chapman Pellett. New York. The A. T. DeLa Mare Company, Inc., 1928. pp. 1-118. Price \$1.75.

There is a chapter on "my special friends" in which brief sketches of the habits and character of a number of common species are presented. Another chapter is entitled "some intruders" and discusses some of the most serious problems of the conservationist.

The author's attitude on these is admirable and is well set forth in a single paragraph—"We must make conditions as favorable as possible for the survival of the greatest number of individuals. If we start in to remove every individual or species that shows destructive tendencies we will have few left when the task is finished." Jays, crows, squirrels, snakes, skunks and most hawks he would deal with individually but the Sharp-shinned and Cooper's Hawks he finds universally bad.

The illustrations consist of a number of good half-tones.

Everyone with a place in the country should be interested in making it a bird refuge and a wild flower preserve, and as a handy guide Mr. Pellett's little book will be most useful; moreover one cannot read far without realizing that the author is a real lover of nature and has the ability to make what he has to say interesting to his readers.—W. S.

Bird Types in the Carnegie Museum.¹—Mr. W. E. Clyde Todd has followed the plan started, we believe, by the reviewer in 1899 (Type Specimens of Birds in the Academy of Natural Sciences of Philadelphia) of listing the type specimens of birds in the collection in his care.

The name of the species appears first with a reference to the place of publication and indication of its identity, if the name proves to be a synonym, then the catalogue number of the type specimen with its data in full.

The Carnegie Museum contains types of nearly 300 species and subspecies. These are mainly described by Mr. Todd but there are a few types of Anthony, Carriker, Ridgway, Oberholser, Hellmayr, and Sutton.

The species are arranged systematically and not by authors.—W. S.

'Aves' for 1927.—Once more ornithologists are indebted to Mr. W. L. Sclater for compiling the 'Aves' for the 'Zoological Record.'² He has collected 1296 titles of books and papers on birds published during the year 1927. These are arranged alphabetically and then follows, as heretofore, a geographical arrangement and a systematic list of new species or notes on other species, making it possible to ascertain at a glance what papers there are dealing with a particular bird or group of birds, or upon the avifauna of any country or province, as well as papers on structure, physiology, habits, migration, nidification, evolution, etc.

The 'Zoological Record' is as absolutely indispensable to the working zoologist as a dictionary or encyclopedia is to the writer or editor. Its main-

¹ List of Types of Birds in the Collection of the Carnegie Museum, on May 1, 1928. By W. E. Clyde Todd. Ann. Carnegie Mus., Vol. XVIII., pp. 335-364, July, 1928.

² Zoological Record, Vol. LXIV. 1927. Aves. (Sept. 1928). Sold at their house on Regents' Park, London. N. W. S. 7 shillings, 6 pence.

tenance deserves all the support that can be extended and, if a zoologist does not care to buy the entire 'Record,' let him secure the portion dealing with his speciality. For the student of ornithology this is the 'Aves' which Dr. Selater has so carefully prepared.—W. S.

Madon's 'Les Corvides d'Europe.'¹—This report is the most voluminous that has yet appeared on the economic status of any family of European birds. The author states that he has been studying the subject in his leisure for 70 years which gives him another record. The number of stomach analyses which he contributes to the investigation is approximately 340 distributed among 5 of the 11 species reported upon. Practically all of these birds are considered as more injurious than beneficial, but we believe the author to be a stern judge, making the most of shortcomings of the birds and minimizing their useful services. The work owes its bulk largely to the detailed digest and critique that is made of the results of other investigators.

Except for the last named feature, the reviewer would class the report as a useful compilation of information on the economic relations of the European Corvidae and make little further comment. The rather severe condemnation of the volumetric system of reporting upon the food habits of birds—the basis of practically all American work on the subject,—however, requires some attention. A review is not the place for discussing this matter at length, especially since that has already been done in 'The Auk,' 29, 1912, pp. 449-464. It seems necessary, however, to explain again that users of the volumetric system do not regard it as perfect, nor do they so regard any other system thus far used. In economic reports a great deal depends upon interpretation, a necessity that is not done away with by the use of the numerical (favorite of our author), or any other, statistical method. Equivalent numbers, weights, or volumes, of such essentially diverse materials as compose the food of practically omnivorous creatures do not have equivalent economic values. Their relations must always be explained.

The volumetric system is frankly admitted to be one of rather rough estimates but in the case of long series of stomachs collected in diverse localities, and at all possible seasons, errors are certain to more or less balance, and an approximation to truth be reached. Madon objects that under the volumetric method soft and rapidly digested items of food do not receive the valuation to which they are entitled. He does not mention the converse of this proposition, namely, that under the numerical system the importance is exaggerated of all foods having specially resistant portions. The numerical system cannot be applied to bulk foods as ground up foliage, tubers, pulpy fruits, flesh, or carrion. Being thus incomplete why is it not better to adopt a method that can be applied to all foods?

¹ Les Corvides d'Europe, leur regime, ses relations avec l'Agriculture et la Chasse. L'analyse stomacale des omnivores. Mem. Soc. Orn. et Mamm. France, No. 1, 255 pp.; also published in Encycl. Orn. No. 3, 1928.

Furthermore, counting food items may be and usually is combined with volumetric analyses so that advantages of both systems are achieved. Birds come much nearer to consuming an average volume of food per day, than they do to taking a certain number of food items, varying as these do, so enormously in size. The report that we can make under the percentage by bulk method that a bird consumes a bushel of may-beetles for every bushel of cherries it destroys, conveys a much more intelligible message to the farmer than would any numerical statement that might be made.

Madon says that the numerical method is the most often used, a very questionable statement if the number of separate publications on bird food be taken into consideration, by far the largest number of which are American and practically all of which employ the volumetric system.

We may briefly refer to some of Madon's inaccuracies which seem chiefly due to lack of experience in stomach analysis. He notes that under the American method "not only the empty stomachs are discarded but also those which are almost so and 'others considered abnormal for various reasons,' but with what right and to what extent?" Discarded in this connection means only rejected from computations of food percentages; the stomach analyses are recorded and the contents preserved for future reference as in the case of all others. Anyone with considerable experience in stomach analysis realizes that in a high proportion of cases abnormal items or combinations of them occur in the nearly empty stomachs. Discarding analyses of such stomachs also does away in great part with an error so pronounced in the numerical system of giving full value to the residues of meals; for instance a large number of mandibles present may represent all of the grasshoppers that have been eaten in a day. The average contents of a bird's stomach, residues ignored, represents approximately a single meal and we obtain the most reliable results by using in our computations only stomachs that conform fairly closely to this average standard. The mandibular residue mentioned, if not discarded, would be reckoned as grasshoppers 100% or a meal of grasshoppers, while if counted and possibly scores of individuals found represented, it would be clear that we were dealing with the remains of several meals, a result not at all comparable to those obtained from the average stomach contents.

"In the small insectivorous birds, one often finds nothing but some of the very finest debris of which the most trained observer could not identify accurately a third." We can only say that this is very seldom the case in analyses by the Biological Survey. Assistance by specialists enables the identification usually of every item in a stomach.

Our author complains of economic classifications, as of lumping all weevils as injurious. The reviewer considers this policy justifiable on account of the potentially noxious character of such groups of vegetarian insects. It is from their ranks that pests arise and new ones are constantly developing. For instance our *Sphenophorus* and *Listronotus* under strictly natural conditions do little to concern mankind, but when we invade their habitat and plant it with stands of maize and rice, they turn to feeding on these

plants, multiply under the very favorable conditions created, and become pests. Similar cases have occurred among other groups of vegetarian creatures.

On the other hand, we believe that Madon errs in classifying all Carabidae, Coccinellidae and the like as beneficial. In the United States the Coccinellids give us two of our greatest beetle pests, the squash beetle and the so-called Mexican bean beetle. The Carabids include the seed corn beetle, and numerous partially vegetarian species. They are by no means all to be ranked with the highly predacious caterpillar hunters (*Calosoma*, *Cychrus*, et al).

How easy it is to be hypercritical as to economic relations is well illustrated by a consideration of these very beetles. Under the American method, we would rank them as beneficial—in accordance with our policy of rough estimates. One like Madon who is so fond of closer analysis should reflect that while the caterpillar hunters have some good to their credit, yet they cannot be wholly good as some of the caterpillars they get feed upon undesirable plants, as weeds. In the present state of knowledge such analysis is not profitable in economic work. We must deal in generalizations. This being the case, technical criticism of the mathematics of economic work, such as fills many pages of Madon's paper, is quite beside the mark. Of what avail is it to have mathematical methods of a high degree of perfection when the quantities they deal with cannot symbolize other than rough approximations to truth?

Madon devotes a chapter (pp. 172-187) to a review of the Biological Survey publications¹ on the food of the crow, in which we note numerous errors. He adds the number of stomachs used in the two investigations, and uses the sum obtained in his analysis of the American results. As a matter of fact the stomach contents used for the first report were re-examined and used in the second so that the total number for both is approximately that given for the second report alone. He says that "corn is the first food given to the young" a statement not supported by the stomach examinations, as Kalmbach writes that "Corn eaten by nestlings less than a week old is practically negligible in quantity." Madon presumes to improve upon Kalmbach's deductions as to the value of the maize consumed, but in combining the results of the two investigations as noted before, he duplicates a large number of the records; he makes unwarranted assumptions as to the length of planting and ripening seasons, and is in ignorance of American harvesting methods which always leave much scattered grain in the fields. There is no doubt, whatever, as American authors have declared, that a great part of the corn consumed by the crow is waste grain the taking of which is, if anything, a benefit to agriculture. The apparent increase in individual maize consumption from the date of the first to that

¹ Barrows, W. B. and E. A. Schwarz, the Common Crow of the United States, Bul. 6, Division of Ornithology and Mammalogy, 1895.

Kalmbach, E. R. The Crow and Its Relation to Man, Bul. 621, U. S. Dept. Agr., 1918.

of the second investigation, which he notes, is due probably not so much to change in habit of the crow, as to inclusion in the second set of analyses of more than 500 stomachs from Corn Belt States as Missouri and Kansas.

Madon's estimate that the number of crows has quadrupled since 1886 is a mere guess; apparently the birds have increased very little in the eastern States, but more in the western States and southwestern Canada where agricultural development has opened up new homes for them.

Madon's comment on egg eating by crows, says nothing of the failure of his pet numerical system to aid in the problem, and like most who argue on the subject fails to admit the fact that (except in regions where the climate permits only one brood) destroying a clutch of eggs or even brood of young of the average wild bird still leaves the bird opportunity to rear young. This fact guides public policy in some places toward colonies of birds, or such species as the eiders and lapwing, a crop of eggs from which is collected annually before the birds are permitted to incubate.

The author makes totally unwarranted deductions as to losses to agriculture (more than hundreds of millions of dollars, he says) due, he claims, to distortion of findings in the first report. Since the first report resulted in no additional protection of the crow, and the public was at liberty to take whatever control measures it pleased (a chapter in Bulletin 6 was devoted to these), even if the losses mentioned were actually suffered which is very doubtful, they could not properly be blamed on anything in Bulletin 6.

Madon's critique of American work on the relations of crows to agriculture, has in places a shrewd aspect, but in others falls into error on account of lack of knowledge of American conditions, and to inexperience in work in economic ornithology. The patronizing tone in places, and assumption of superior knowledge of economic relationships, by one who has examined only tens of stomachs to thousands examined by American investigators is entirely unwarranted. If Madon's work had been confined to presentation of original material and an uncensorious review of other European work it would have been more valuable and acceptable than it is in its present form.—W. L. M.

Further on Birds in the Ecology of Spitsbergen.—In 'The Auk' for January 1924 (Vol. 41, No. 1, p. 191) the reviewer noted a paper by V. S. Summerhayes and C. S. Elton on Spitsbergen and Bear Island that contained interesting material on birds. These authors have again published¹ on the results of their share in the Oxford and subsequent expeditions, and the ornithological findings have a distinctly novel cast. For instance the Ivory Gull, according to the authors, is to the polar bear what the jackal is to the African lion; it subsists almost entirely on the carcasses of seals left by bears. The gull shows extreme reluctance to alight on the water and seems more like a land- than a sea-bird. The assumed protective value of the coloration of the Ivory Gull is questioned.

¹ Further contributions to the Ecology of Spitsbergen, Journ. Ecology, 16, No. 2, Aug. 1928, pp. 193-268, pls. 24-35, 5 figs., 1 map.

Throughout the document are references to specific feeding habits of birds, especially the glaucous gull, arctic skua, turnstone, purple sandpiper, and snow bunting. One of the most interesting points brought out is that bird-manuring is a primary factor in the distribution of vegetation in Spitsbergen, sometimes showing a control cutting right across the zonation produced by climate. The increased variety and luxuriance of vegetation on the skua-hummocks, bird islands and bird-cliffs, has distinct effects on the variety, abundance, and distribution of animal life, even on birds themselves. A case in point is the moss-lichen flats produced by the manuring of the Arctic Tern, which form the basis for the growth of grassy patches where the tern refuses to nest, but which are occupied by the Brent Goose and King Eider. Since the terns are the sole factor producing the grass turf, they are bringing about conditions that will eventually drive themselves off the island. The important element is nitrogen, derived from sea-animals preyed upon by the birds and ultimately from marine diatoms.

Thus problems in animal life in the Arctic are not really simpler than elsewhere, but that they appear simpler and thus more likely to yield satisfying conclusions, perhaps by reason of being fewer and more sharply set off, surely is an important element in their fascination for students.
—W. L. M.

St. Clair-Thompson on the Protection of Woodlands.—“The Protection of Woodlands by Natural as Opposed to Artificial Methods,” as the title of the book¹ reads in full, is a manual in which the usual impracticability of artificial control of forest pests and the contrasted practicability and desirability of natural control are stressed. Since the author believes that “the numbers of injurious insects are normally kept under control more by birds than by any other parasites or predator” (p. 104), the book is devoted largely to the role of English birds in woodland economy and suggestions for better utilization of their services. He advocates a semi-natural system of mixed arboriculture rather than pure stands because it favors variety and number in the bird population. The only additional method of encouraging birds which he recommends is the provision of nest boxes; the reviewer would interject here, however, that winter feeding of suet is so cheap, easy and necessary, as not to be regarded as of only exceptional utility, and that “sparing” not “planting” of fruit-bearing species of shrubs and trees can be incorporated into any forest program without cost, consequently must be regarded as “practicable.”

The author is so keen about appraising everything from a strictly economical forestry point of view that in some cases at least the preponderating economic tendencies of certain species are ignored. For instance of the tree-creeper, he says “except in pest areas, when it may be useful, of rather limited value, if it is not slightly injurious . . . should not, at all events, be

¹ G. W. St. Clair-Thompson, London, 1928, 223 pp. H. F. G. Witherby.

encouraged," (p. 48). This is a surprising dictum concerning a chiefly insectivorous bird that gleans its food almost entirely from trees. Upon looking for the reason we find it is because the tree-creeper includes predaceous Coccinellidae (ladybird beetles) in its food. Otherwise the schedule of its diet looks very much like that of one of the tits which are termed "quite the most useful birds of the forest" (p. 57). There is certainly too much discrepancy in the ratings of these groups of birds, far more in fact than a touch of Coccinellid diet can warrant. Feeding upon ladybirds is also the reason for St. Clair-Thompson's saying about swallows, martins, and swifts that "in the forest they must always be undesirable" (p. 65), a statement we must definitely challenge. Indiscriminate feeders like these always will consume some useful insects but that does not affect their general status as preponderantly useful species. So also in their relation to forests, usually it must be admitted not a particularly close one, swallows, martins, and swifts certainly do more good than harm. Little has been published on the food of these birds in England but if we can apply American experience to them, we can be sure that when bark beetles, plant lice, and other forest pests are on the wing that these birds will be found feeding on them persistently and voraciously.

The crossbill's "influence is decidedly harmful" (p. 44), we are told, despite the fact that their chief food, coniferous seeds, are produced in excessive profusion during a period of many years in the life of each bearing tree. Actual interference with forest reproduction by the depredations of cross-bills, therefore, is something that probably never occurs.

On the other side of the picture is the very high ranking given the starling; regardless of the generally useful nature of its food habits, the starling can hardly be reckoned as a forest bird. Again "so beneficial is the food of adult cuckoos, chiefly due to lack of useful parasitic insects and Coccinellidae, that broods of the less useful small birds can well be spared" (p. 75). If the exchange were in individuals, this statement could be accepted, but as to rating one cuckoo as more useful than a whole brood of the chiefly insectivorous birds destroyed in its production, we cannot agree.

St. Clair-Thompson highly commends the birds of prey other than the Falconidae and the sparrow hawk (*Accipiter nisus*) saying that they "constitute the most powerful natural agent in the control of mice and voles, Mustelidae in their present numbers not excepted" (p. 89). Something to be borne in mind when game bird introductions are considered is this writer's statement that the capercaillie and black game are very injurious except in mature forest, sometimes insurmountably handicapping reforestation efforts (pp. 92-96). On the other hand "it may safely be said that pheasant-rearing is largely responsible for the scarcity of insect pests in those preserved woods, which constitute so large a proportion of the total woodlands in England" (p. 184).

In fact the woodlands of England used for game preservation and therefore of an open type have had large bird populations and have been notably

free from serious insect depredations, while continental forests of the pure stand type with fewer birds have suffered seriously from pest invasions. We may quote as the author's general conclusions that: "Biological control is very effective up to a point; secondly it is the cheapest form of protection, because it is the most natural; thirdly, it is quite the most permanent, for once begun it continues to be automatic in its action" (p. 173), and "the problem of effective, cheap, and permanent control . . . is seen to have been solved by the proper encouragement of certain insectivorous birds" (p. 173).—W. L. M.

The Ornithological Journals.

Bird-Lore. XXX, No. 5. September-October, 1928.

A Visit to Gilbert White's Selborne. By Charles W. Townsend.—An interesting account of a visit in May 1927. Those who would follow the subject farther should consult a similar journey described by Cornelius Weygandt in the 'Atlantic Monthly' for August, 1904.

A Contribution to the History of the Passenger Pigeon. By Benedict H. Revoil.—Reprint of an article in his 'Chasses dans l'Amerique du Nord.'

Fun in a Bird-Blind. By Alice B. Harrington.—Intimate studies of bird actions when undisturbed.

Bird Personalities. By J. H. Chase.—Studies of character in banded birds.

At Timberline. By Catharine A. Hurlbutt.—In the Rockies.

In the Audubon Society school department Dr. A. A. Allen has an interesting article on the Cowbird with numerous illustrations. A male is shown in a flying cage making his courtship display before a stuffed female.

Bird-Lore. XXX, No. 6. November-December, 1928.

Chance Flashlights of Birds. By Tappan Gregory.—Excellent photographs.

Midget. By Don Weydemeyer.—Account of a Clarke's Nutcracker.

A Mountain Idyl. By Mary Beal.—Apparently somewhere in California.

The articles and plate on migration and plumage of North American birds cover the Williamson's Sapsucker and White-headed Woodpecker.

Dr. Allen's illustrated article describes the life of the Downy Woodpecker.

The annual report of the National Association of Audubon Societies is as always very full and interesting.

The Condor. XXX, No. 5. September-October, 1928.

Notes on Persons whose names appear in the Nomenclature of California Birds. By T. S. Palmer.—This extensive paper presents brief biographical notices of some 180 persons whose names are associated with the various Californian birds, while Dr. Palmer has added a list of portraits and presented some interesting general facts in a preface. The paper is an important contribution to the biography of ornithologists.

Bird Banding at Florence Lake. By Lila M. Lofberg.—Notes on birds banded at 7340 feet elevation in the Sierra Nevada.

Fauna and Faunal Area. By J. T. Nichols.—Discusses the difference between life zone, faunal area and fauna.

Further Experiments in Removing Birds from Places of Banding. By E. L. Sumner, Jr., and J. L. Cobb.

The Condor. XXX, No. 6. November–December, 1928.

Notes on the Development of Young Screech Owls. By E. L. Sumner, Jr.

The Woodpeckers of Lincoln County, Montana. By W. and D. Weydemeyer.

The Nesting of Howard's Grouse. By J. R. Pemberton.

The Species and Subspecies of the Fringillid Genus *Passerella* Swainson. By Jean M. Linsdale.—A summary of some conclusions set forth in detail in his longer paper on the same subject.

The Wilson Bulletin. XL, No. 3. September, 1928.

The Canada Goose in Yellowstone National Park. By M. P. Skinner.

Bob-white and Scarcity of Potato Beetles. By E. L. Moseley.—The birds are estimated as twenty times as numerous as they were before their shooting was stopped and the coincident scarcity of the beetles is credited to the Bob-whites.

Chimney Swifts in November, 1925. By Otto Widmann.—Present in numbers as late as November 16 in southern Illinois.

How Does the Turkey Vulture find its Food? By J. B. Lewis.—Also published (October 1928) in 'The Auk.'

Some Environmental Relations of the Birds in the Missouri River Region. By Jean M. Linsdale.—An ecological-economic study. The summary of the relation between birds and "culture" is interesting showing the change in conditions when man appears on the scene.

Birds Observed in the Vicinity of Santiago de Cuba. By S. T. Danforth.—An annotated list.

Birds of Upper South Carolina: A Study in Geographical Distribution. By A. L. Pickens (to be continued).

The Wilson Bulletin. XL, No. 4. December, 1928.

Notes on the Nesting Habits and Songs of the Mockingbird. By J. Paul Vischer.—An interesting discussion on the question of mimicry—real and inferred.

On the Status of Harlan's Hawk. By G. Eifrig.—The author seems to have missed the most important point in the question that he discusses. He compares "Harlan's Hawk" with the melanistic "Western Red-tail" but does not tell us just what specimens are the basis of his comparison. As Taverner has clearly demonstrated Audubon's plate which is the basis of *harlani* is a melanistic Red tail and Cassin's type of *calurus* is also a

melanistic specimen. If Mr. Eifrig's Wisconsin bird is a "typical Harlan's Hawk" then it is necessarily a melanistic Red-tail; if it is identical with the Atlin specimens then it is probably something else as yet unnamed.

A Theory of How the Turkey Vulture Finds its Food. By William Brewster Taber.—Suggests that Vultures are on the lookout for indications of food such as aggregations of Crows, rodents or even carrion beetles and thus may locate carrion without exercising the sense of smell and without actually seeing it, as in the case of carrion covered by a box.

A Southward Movement of Breeding Savannah Sparrows in Ohio. By Louis W. Campbell.

Nesting Habits of the Seaside Sparrows in Florida. By D. J. Nicholson.

The Murrelet. IX, No. 3. September, 1928. [Mimeographed journal].

Notes from St. George's Island, Alaska. By W. H. Carver.

Recession in Weight of Fledgling Swallows. By J. M. Edson.

The Ibis. (XII series). IV, No. 4. October, 1928.

On the Birds of Central Spain. By H. F. Witherby (continued).—Annotated list.

On the Avifauna of Galicia. By C. B. Ticehurst.—Annotated list.

The Birds of Geneva. By Anthony Buxton.—A popular account.

The Birds of the Region South of Lake Nyassa. Part I. By A. H. Paget Wilkes.—Annotated list.

A Contribution to the Ornithology of the Coastland of British Guiana. By Charles G. Young.—Interesting accounts of the habits of the species (to be continued).

Bulletin of the British Ornithologists' Club. CCCXXVI. October 30, 1928.

Many albinos or birds in abnormal plumage are listed which were exhibited at the annual meeting of the Club.

Lord Rothschild described a new race of Cassowary, from the Aru Islands. *Casuarus bicarunculatus intermedius*. (p. 10).

There is a discussion of the races of *Oenanthe monticola* by W. L. Sclater who also names the Bourbon Stonechat *Saxicola borbonensis* (p. 14) and describes two new races of *Karrucincla schlegelii*.

G. M. Mathews proposes the generic name *Neolalage* (p. 19) for *Pseudolalage* and *Pagodroma nivea pealei* (p. 19) for *Procellaria nivea* Peale.

D. Bannerman describes *Indicator hutsoni* (p. 20) from northern Nigeria.

British Birds. XXII, No. 4. September 1, 1928.

The Office of Master of Swans. By N. F. Ticehurst.—An interesting contribution to the early history of Swan raising.

British Birds. XXII, No. 5. October 1, 1928.

Some New British Birds and Other Alterations to the British List. By

H. F. Witherby.—The American Nighthawk is added to the list on the basis of a specimen shot on the Scilly Isles, but the B. O. U. Committee apparently overlooked Dr. C. W. Richmond's note (Auk, 1917, p. 88) in which he shows that the name *minor* J. R. Forster, has precedence over *virginianus* Gmelin.

Further Notes on Puffin Island, 1928. By William Aspden.

British Birds. XXII, No. 6. November 1, 1928.

Bird Notes from the North Atlantic. By E. M. Nicholson.—Made from the voyage of the Oxford Greenland Expedition of 1928.

The "Wing-clapping" of the Nightjar. By T. A. Coward.—Shows that the noise is not made by clapping the tips of the wings together but probably by a sudden motion of the feathers like snapping a whip.

The Oölogists' Record. VIII, No. 3. September 1, 1928.

List of Birds Known to Breed in a Given Area in the Island of Trinidad. By G. D. Smooker.

Nest and Eggs of the Western Evening Grosbeak. By J. K. Jensen.

Notes on Corsica. By R. F. Meiklejohn.

Also notes on the nesting habits of several species.

The Oölogists' Record. VIII, No. 4. December, 1928.

Nest and Eggs of the Malay Brahminy Kite. By L. R. Wolfe.

The Breeding Accipiters of Utah. By L. R. Wolfe.

The Emu. XXVIII, Part 2. October, 1928.

The Coles Lorikeet. By Clifford Coles.

The Birds of Central Northern Victoria. By Hugh A. C. Leach.

A Visit to Taranga, Hen and Chickens Group. By Mrs. Perrine Moncrieff.

The Avifauna of the Upper Reaches of the Macleay River, N. S. W. By J. J. DeWarren.

Bird Notes from Tarraberb. By A. H. R. Wilson.

The Validity of the Generic Name *Aestrelata*. By W. R. B. Oliver.—The substitution of *Pterodroma* on the ground of page priority is objected to because it is contrary to Article 28 of the International Code which rules that when two genera are united the name adopted by the first revisor shall prevail and in this case Coues when uniting the two genera adopted *Aestrelata*. While Mr. Oliver seems to be correct in his contention, the rule he quotes does not agree with the rule of the A. O. U. Code which holds out for page priority. The latter is in our estimation a far better method as the International rule leads to all sorts of complications and involves the element of personal opinion. The International Commission has itself violated its own Article in Opinion 40 ignoring the first revisor entirely in spite of Dr. Stejneger's note on the matter. We can only hope for a revision of this Article.

Bird Migration in New Zealand. By Mrs. Perrine Moncrieff.

OBITUARIES

DR. PETER PETROVICH SUSHKIN, elected as a Corresponding Fellow of the American Ornithologists' Union in 1903 and an Honorary Fellow in 1918, died of pneumonia at Kislovodsk, Caucasus, Russia, Sept. 17, 1928. He was born at Tula, Russia, Feb. 8 (Jan. 27), 1868, was a student under Professor Michael Menzbier in Moscow, and in 1899 became an assistant in the Museum of Comparative Anatomy of the Imperial Russian University in Moscow, where he received the degree of Doctor in 1903. He was appointed on the staff of the Zoological Museum in Leningrad in 1898, a position which he filled until his death, when he had completed 30 years' service.

He made several field trips to southeastern Russia and southwestern Siberia, including two expeditions in 1894 and 1898 to observe birds during spring and autumn migration on the Kirghiz Steppes immediately north of the Caspian and Aral Seas, a desert region previously explored by Severtzov and Zarudny. Later he made an extended trip to the Altai Mountains in Central Asia and had planned to return to that region when the outbreak of the Great War suspended exploration for several years. At the time of his death he was on a field trip in northern Caucasus.

While not a voluminous writer, Doctor Sushkin published a number of papers in English, German, and Russian. He was one of the best authorities on Palaearctic birds and had the unique advantage of being personally familiar with large areas in Russia and Siberia and also with conditions in the United States, gained through an extended trip in this country in 1925. In addition to being an ornithologist, he was an all-round zoologist and was deeply interested in Permian reptiles.

During his visit to America he spent much time in making drawings which he executed with great skill, illustrating skulls and other osteological details of birds. Among the results of these studies was a recent paper showing that the English Sparrow (*Passer domesticus*) is more nearly related to the Weaver Birds than to the Finches.

Doctor Sushkin was one of the leading Russian zoologists. He was a careful observer with wide field experience, a curator with thorough knowledge of museum material, and a student with wide acquaintance with the literature of the subjects in which he was interested. Besides holding the position of head of the Department of Ornithology in the Museum of the Academy of Sciences in Leningrad, he was President of the Commission for the study of the Mongol, Tannu-Tuva and Buriat-Mongol Republics, and Vice-President of the Commission for the study of the Quaternary.

His death is a serious loss to ornithology since, through his familiarity with Palaearctic and Nearctic birds and their ecological conditions, he was peculiarly well qualified to correlate some of the closely related forms which are represented both in Europe and in North America.—T. S. P.

CHARLES SHELDON, an Associate of the Union since 1911, died suddenly at Kedge-makooge, Nova Scotia, Sept. 21, 1928. He was born at Rutland, Vt., Oct. 17, 1867, and was the son of John A. and Caroline A. Sheldon. His early education was received at Phillips Academy, Andover, Mass., and he was a graduate of Yale University in the class of 1890. From 1893 to 1902 he was engaged in railroad work with the Lake Shore & Michigan Southern Railway Co., the Consolidated Car Heating Co., and the Chihuahua and Pacific Railway Co. in Mexico. A large part of the time during the next few years was spent in exploration and hunting game in the Yukon Territory and Alaska, the results of which appeared in his two books: 'The Wilderness of the Upper Yukon,' 1911, and 'The Wilderness of the North Pacific Coast Islands,' 1912.

After his removal to Washington about 1911 he devoted his attention largely to conservation and to building up his great library on hunting and game protection. He was greatly interested in conservation legislation to which he devoted much time and in which he exercised a potent influence. He took a prominent part in the negotiations relative to the Federal Migratory Bird Law, the Migratory Bird Treaty, and the Migratory Bird Treaty Act, headed the movement to establish the Mt. McKinley National Park, and was chiefly responsible for the National Outdoor Conference on Recreation in 1924.

Sheldon, while quiet and somewhat retiring, was a man of broad views, sound judgment, and deep convictions. Although he took an active part in conservation matters he preferred to let others occupy the center of the stage. His work was important and far-reaching and will be better appreciated when more generally known.—T. S. P.

NOTES AND NEWS.

THE PRESENT ISSUE of 'The Auk' is necessarily late owing to the late date of the A. O. U. meeting and the impossibility of getting certain papers, and the reports on the meeting itself, to the printer at the usual time.

It is however not too late to wish both readers and contributors a Happy New Year.

To the former we would also offer apologies for the shortcomings that every editor is aware of in his publication; while to the latter we extend sympathy for the delay in the appearance of their papers and the hope that funds may soon be forthcoming that will enable us to handle manuscripts more promptly and avoid such a long waiting list.

In this connection some suggestions occur to us by following which contributors could help one another as well as the editor.

(1) Be as brief as possible, using no more words than necessary to express, in good English form, the facts or theories that you wish to publish. Every unnecessary paragraph may force us to hold some other communication over for the next issue.

(2) Make yourself thoroughly conversant with what has been previously published on the subject, and comment on the differences or similarities of your observations and those of your predecessors, rather than set forth the whole matter anew, and always give credit and references to the previous work of others. It is now quite impossible to publish in 'The Auk' complete annotated lists of the birds of any portion of the eastern United States and most of the western States, as it would involve too much duplication of what has already been printed. Such lists should be cared for in state reports or 'Proceedings' of local societies. Short lists of notable occurrences are, however, always acceptable.

(3) In preparing manuscript for 'The Auk' the editor will be saved a vast amount of labor if "General Notes" be prepared exactly as they are to be printed. Consult the notes in any issue and make your note conform exactly to that model. Do not make it part of a letter to the editor as he must then rewrite it for the printer, and in all lists place the Latin name first followed by the English name.

If possible have your manuscript typed and never write on both sides of the paper. Dr. Elliott Coues once said "If the archangel Gabriel were to send us the glad tidings of salvation on both sides of the paper we should decline his article with thanks and tell him that is no way to blow his horn!"

There are a few other thoughts that come to mind in connection with the new year that might be put in the form of resolutions.

(I) Let us resolve not to waste time and space attacking the manufacturer of subspecies. This is a perfectly legitimate industry, practised all over the world, and the artisans do not ask everyone to accept their wares. Each of us is free to accept or reject what we like. There is no

right or wrong about the subspecies business, like many other things it is a matter of personal opinion and it will go on forever. Subspecies are very important for certain lines of work and those not concerned with such work need not use them.

The new 'Check-List' will include all subspecies that have been properly proposed and not disproven, just as the check-lists of the birds of other countries do, and just as dictionaries are supposed to include all words whether we wish to use them or not. Some one else is going to use words that we do not need and we must know what they mean, and exactly so with subspecies and the 'Check-List.'

(II) Let us resolve not to quibble over the differences, if any, between species and subspecies. We do not really *know* anything about it and individual opinion will continue to exist for all time. The 'Check-List' committee will present its opinions on each case and the vast majority, as in the past, will accept them, glad of some standard.

(III) Let us resolve, to avoid controversy among conservationists and to sink our personal interests in all matters of wild life preservation, and back a broad policy to save our forests and wild life for the enjoyment of the people at large who love nature. If the business man, promoter, sportsman, farmer and biased ornithologist are each going to destroy whatever stands in the way of his personal interests we shall soon have no wild life left. Only those conversant with all sides of such questions should say what animals may be destroyed or how far the disruption of forest and marsh may be carried, and when the "doctors disagree," as they have been doing of late when conservation bills are presented for adoption, how can we expect the legislators to do anything?

ATTENDANCE AT A. O. U. MEETINGS. Members are often interested in knowing how the last annual meeting compared in size with previous gatherings. Such figures as are available are given in the following table which shows the attendance at the last ten meetings. The column marked 'Others' includes Retired, Honorary and Corresponding Fellows; asterisks indicate that the figures are only approximate since it is very difficult to ascertain the exact number of Associates present as some fail to register.

Year	Meeting	Fellows	Others	Members	Associates	Total
1919	New York	28	1	—	—	125*
1920	Washington	25	2	—	—	150*
1921	Philadelphia	25	4	24	76*	125
1922	Chicago	24	1	17	108*	150
1923	Cambridge	25	0	25	100*	150
1924	Pittsburgh	26	1	17	96*	140
1925	New York	30	2	27	146	205
1926	Ottawa	22	1	24	88	135
1927	Washington	30	4	33	148	215
1928	Charleston	27	1	26	76	130

The figures given above are not entirely comparable. While the number of Fellows has remained at 50, the number of Members has increased from 84 in 1919 to 103 in 1928, the number of Associates from 807 to 1474, and the total membership from 1024 to 1741. At two meetings the number of Fellows present reached 30, or 60 per cent. and at five meetings exceeded 50 per cent. of the total number. The number of members present has never been one third of the total although it almost reached this proportion in 1927. The total attendance at half of the recent meetings, in 1919, 1920, 1922, 1925 and 1927, exceeded 10 per cent. of the total membership of the Union.—T. S. P.

FIELD TRIPS in conjunction with the A. O. U. meetings are attracting increasing interest. The following list of birds seen on the outing to Dewees Island during the recent Charleston meeting was reported by Mr. Charles H. Rogers.

Dewees Island, S. C.—November 23rd, 1928.

From Charleston by boat from foot of Charlotte Street to Dewees Island and back (on foot on Dewees Island three and one half hours). 8:15 A. M.—5 P. M. Cloudless; brisk westerly wind; 50° at 2:20 P. M.

Horned Grebe	9	Turkey Vulture	12
Pied-bill Grebe	1	Black Vulture	9
Common Loon	1	Marsh Hawk	4
Herring Gull	20	Sharp-shinned Hawk	1
Ring-bill Gull	35	Bald Eagle	1 im.
Laughing Gull	60	Osprey	1
Bonaparte's Gull	3	Sparrow Hawk	1
Caspian Tern	25	Kingfisher	2
Forster's Tern	10	Red-bellied Woodpecker	1
Double-crested Cormorant	3	Flicker	1
Red-breast Merganser	14	Phoebe	1
Hooded Merganser	7	American Crow	several
Black Duck	6	Fish Crow	several
Scaup sp.	1	Red-wing Blackbird	12
Bufflehead	3	Meadowlark	several
Great Blue Heron	several	Florida Grackle	few
Little Blue Heron	10	Boat-tail Grackle	50
Louisiana Heron	5	House Sparrow	7
Clapper Rail	1	White-throat Sparrow	several
Coot	2	Junco	1
Western Sandpiper	few	Towhee	2
Willet	few	Tree Swallow	1
Black-belly Plover	several	Loggerhead Shrike	2
Semipalmated Plover	several	Myrtle Warbler	several
Turnstone	1	Pine Warbler	1

Mockingbird	1	Golden-crown Kinglet	2
Brown Thrasher	1	Ruby-crown Kinglet	1
Carolina Wren	1	Hermit Thrush	several
House Wren	1	Robin	1
Brown Creeper	1		

